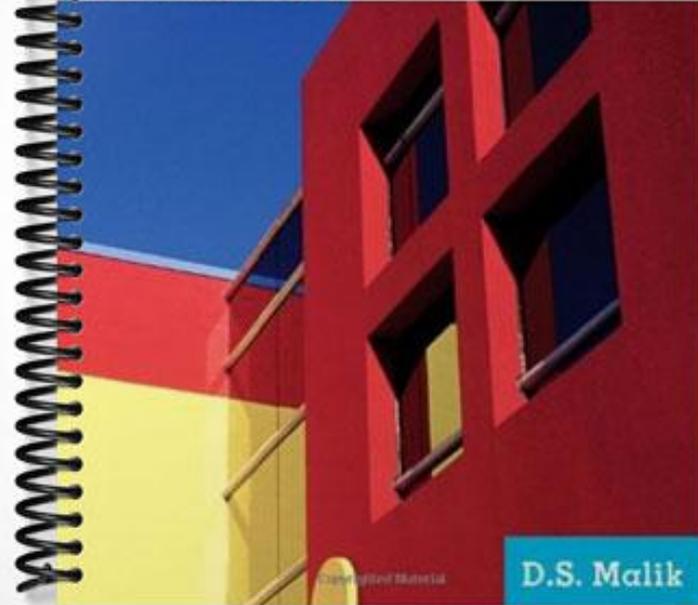


**TEST BANK**

**JAVA**  
**PROGRAMMING**  
FROM PROBLEM ANALYSIS TO  
PROGRAM DESIGN

5<sup>TH</sup> EDITION



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## Chapter 2: Basic Elements of Java

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### TRUE/FALSE

1. The pair of characters `//` is used for single line comments.  
ANS: T            PTS: 1            REF: 29
2. The `==` characters are a special symbol in Java.  
ANS: T            PTS: 1            REF: 30
3. An identifier can be any sequence of characters and integers.  
ANS: F            PTS: 1            REF: 31
4. The symbol `'5'` does not belong to the `char` data type because 5 is a digit.  
ANS: F            PTS: 1            REF: 33
5. The data type `float` is a floating-point data type.  
ANS: T            PTS: 1            REF: 35
6. The number of significant digits in a `double` variable is up to 15.  
ANS: T            PTS: 1            REF: 35
7. A value such as `'d'` is called a character constant.  
ANS: T            PTS: 1            REF: 36
8. An operator that has only one operand is called a unique operator.  
ANS: F            PTS: 1            REF: 36
9. Operators of the same precedence are evaluated from right to left.  
ANS: F            PTS: 1            REF: 39
10. When evaluating a mixed expression, all integer operands are converted to floating-point numbers with the decimal part of zero.  
ANS: T            PTS: 1            REF: 41
11. When a value of one data type is automatically changed to another data type, an implicit type coercion has occurred.  
ANS: T            PTS: 1            REF: 43
12. Suppose `x = 18.6`. The output of the statement `System.out.println((int)(x) / 3);` is 6.

ANS: T                   PTS: 1                   REF: 44

13. The null string contains only the blank character.

ANS: F                   PTS: 1                   REF: 45

14. The value of a variable may change during program execution.

ANS: T                   PTS: 1                   REF: 50

15. If `a = 4;` and `b = 3;`, then after the statement `a = b;` executes, the value of `b` is 4 and the value of `a` is 3.

ANS: F                   PTS: 1                   REF: 51

16. The Java language is strongly typed.

ANS: T                   PTS: 1                   REF: 54

17. Java automatically initializes all variables.

ANS: F                   PTS: 1                   REF: 55

18. Suppose `console` is a `Scanner` object initialized with the standard input device. The expression `console.nextInt();` is used to read one `int` value and the expression `console.nextDouble();` is used to read two `int` values.

ANS: F                   PTS: 1                   REF: 56

19. Suppose `console` is a `Scanner` object initialized with the standard input device and `feet` and `inches` are `int` variables. Consider the following statements:

```
feet = console.nextInt();  
inches = console.nextInt();
```

These statements require the value of `feet` and `inches` to be input on separate lines.

ANS: F                   PTS: 1                   REF: 58

20. Suppose that `index` is an `int` variable. The statement `index = index + 1;` is equivalent to `index++;`

ANS: T                   PTS: 1                   REF: 64

21. If `++x` is used in an expression, first the expression is evaluated, and then the value of `x` is incremented by 1.

ANS: F                   PTS: 1                   REF: 65

22. Suppose `x = 8`. After the execution of the statement `y = x++;` `y` is 8 and `x` is 10.

ANS: F                   PTS: 1                   REF: 65

23. Both `System.out.println` and `System.out.print` can be used to output a string on the standard output device.

ANS: T                    PTS: 1                    REF: 66

24. The character sequence `\n` moves the insertion point at the end of the current line.

ANS: F                    PTS: 1                    REF: 67

25. In Java, a period is used to terminate a statement.

ANS: F                    PTS: 1                    REF: 81

## MULTIPLE CHOICE

1. The \_\_\_\_ rules of a programming language tell you which statements are legal, or accepted by the programming language.

- a. semantic
- b. logical
- c. syntax
- d. grammatical

ANS: C                    PTS: 1                    REF: 29

2. Which of the following is NOT a reserved word in Java?

- a. double
- b. throws
- c. static
- d. num

ANS: D                    PTS: 1                    REF: 30

3. Which of the following is a valid Java identifier?

- a. \$pay
- b. 4myGrade!
- c. newGrade!
- d. 1dollar

ANS: A                    PTS: 1                    REF: 31

4. Which of the following is a valid `int` value?

- a. 3279
- b. 3,279
- c. 3270.00
- d. -922337203684547758808

ANS: A                    PTS: 1                    REF: 33

5. Which of the following is a valid `char` value?

- a. '\$\_'
- b. '%'
- c. 'n\'
- d. "a"

ANS: B                    PTS: 1                    REF: 33-34

6. The memory allocated for a `double` value is \_\_\_\_ bytes.

- a. 2
- b. 4
- c. 8
- d. 16

ANS: C                    PTS: 1                    REF: 35

7. The value of the expression `14 % 3` is \_\_\_\_.

- a. 1
- c. 3

b. 2 d. 4

ANS: B PTS: 1 REF: 37

8. Operators that have two operands are called \_\_\_\_.
- a. unary operators
  - b. binary operators
  - c. operators
  - d. expressions

ANS: B PTS: 1 REF: 36

9. The value of the expression  $5 + 10 \% 4 - 3$  is \_\_\_\_.
- a. 0
  - b. 2
  - c. 4
  - d. 5

ANS: C PTS: 1 REF: 39

10. The expression `(int)8.7` evaluates to \_\_\_\_.
- a. 8
  - b. 8.0
  - c. 9.0
  - d. 9

ANS: A PTS: 1 REF: 43

11. The expression `(double)(5 + 4)` evaluates to \_\_\_\_.
- a. 8
  - b. 9
  - c. 9.0
  - d. 10.0

ANS: C PTS: 1 REF: 43

12. The length of the string "first java program" is:
- a. 16
  - b. 18
  - c. 19
  - d. 20

ANS: B PTS: 1 REF: 45

13. Which of the following statements about a named constant is NOT true?
- a. Its content cannot change during program execution.
  - b. Its value can be changed during program execution.
  - c. It is a memory location.
  - d. It is declared using the reserved word `final`.

ANS: B PTS: 1 REF: 48

14. What type of Java statement(s) stores a value in a variable?
- a. input
  - b. output
  - c. assignment
  - d. Both an input statement and an assignment statement

ANS: D PTS: 1 REF: 51

15. Suppose that `x` and `y` are `int` variables and `x = 7` and `y = 8`. After the statement: `x = x * y - 2;` executes, the value of `x` is \_\_\_\_.
- a. 42
  - b. 54
  - c. 56
  - d. 58

ANS: B PTS: 1 REF: 51

16. Given

```
char ch;  
int num;  
double pay;
```

Which of the following assignment statements are valid?

- (i) `ch = '*';`
- (ii) `pay = num * pay;`
- (iii) `rate * 40 = pay;`

- a. Only (i) is valid
- b. (i) and (ii) are valid
- c. (ii) and (iii) are valid
- d. (i) and (iii) are valid

ANS: B                    PTS: 1                    REF: 51

17. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = --beta;` is equivalent to the statement(s) \_\_\_\_.

- a. `beta = beta - 1;`  
`alpha = 1 - beta;`
- b. `beta = beta - 1;`  
`alpha = beta - 1;`
- c. `beta = beta - 1;`  
`alpha = beta;`
- d. `alpha = beta;`  
`beta = beta - 1;`

ANS: C                    PTS: 1                    REF: 64-65

18. The standard output object in Java is \_\_\_\_.

- a. `output`
- b. `System.out`
- c. `Sys.out`
- d. `System.in`

ANS: B                    PTS: 1                    REF: 66

19. What is the output of the following statement?

```
System.out.println("Welcome \n Home");
```

- a. `WelcomeHome`
- b. `Welcome Home`
- c. `Welcome`  
`Home`
- d. `Welcome \n Home`

ANS: C                    PTS: 1                    REF: 67

20. Which of the following is the newline character?

- a. `\r`
- b. `\n`
- c. `\l`
- d. `\b`

ANS: B                    PTS: 1                    REF: 70

21. Consider the following program.

```
public class CircleArea  
{
```

```

static Scanner console = new Scanner(System.in);
static final float PI = 3.14;

public static void main(String[]args)
{
    float r;
    float area;
    r = console.nextDouble();
    area = PI * r * r;
    System.out.println("Area = " + area);
}
}

```

To successfully compile this program, which of the following import statement is required?

- a. import java.io;
- b. import java.util;
- c. import java.lang;
- d. No import statement is required

ANS: B                    PTS: 1                    REF: 71-72

22. Consider the following program.

```

// Insertion Point 1
public class CircleArea
{
    // Insertion Point 2
    static final float PI = 3.14

    public static void main(String[]args)
    {
        //Insertion Point 3

        float r = 2.0;
        float area;
        area = PI * r * r;
        System.out.println("Area = " + area);
    }
    // Insertion Point 4
}

```

In the above code, where do the import statements belong?

- a. Insertion Point 1
- b. Insertion Point 2
- c. Insertion Point 3
- d. Insertion Point 4

ANS: A                    PTS: 1                    REF: 75

23. \_\_\_\_ are executable statements that inform the user what to do.

- a. Variables
- b. Prompt lines
- c. Named constants
- d. Expressions

ANS: B                    PTS: 1                    REF: 81

24. The declaration `int a, b, c;` is equivalent to which of the following?

- a. `int a , b c;`
- b. `int a;`  
`int b;`
- c. `int abc;`
- d. `int a b c;`

```
int c;
```

ANS: B

PTS: 1

REF: 82

25. Suppose  $x = 4$  and  $y = 2$ . If the statement

```
x *= y;
```

is executed once, what is the value of  $x$ ?

a. 2

c. 8

b. 4

d. This is an illegal statement in Java.

ANS: C

PTS: 1

REF: 85