Java Programming 10th edition Farrell Test Bank

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ESSAY

1 : What is a logic error? Why is it essential to plan the logic before writing a program?

Correct Answer : A logic error is a bug that allows a program to run, but that causes it to operate incorrectly. Correct logic requires that all the right commands be issued in the appropriate order. Examples of logic errors include multiplying two values when you meant to divide them or producing output prior to obtaining the appropriate input.When you develop a program of any significant size, you should plan its logic before you write any program statements because correcting logic errors is much more difficult than correcting syntax errors. Syntax errors are discovered by the language translator when you compile a program, but a program can be free of syntax errors and execute while still retaining logic errors.

2 : Describe the procedural programming approach to writing computer programs.

Correct Answer : Procedural programming is a style of programming in which operations are executed one after another in sequence.The typical procedural program defines and uses named computer memory locations; each of these named locations that can hold data is called a variable. The variable value might be used in an arithmetic statement, used as the basis for a decision, sent to an output device, or have other operations performed with it. The data stored in a variable can change, or vary, during a program's execution.The individual operations used in a computer program are often grouped into logical units called procedures. Procedures are also called modules, methods, functions, and subroutines. As a procedural program executes its statements, it can sometimes pause to call a procedure. When a program calls a procedure, the current logic is temporarily suspended so that the procedure's commands can execute.

3 : Why is creating a GUI environment for users a natural use for object orientation?

Correct Answer : Creating a GUI environment for users is a natural use for object orientation. It is easy to think of the components a user manipulates on a computer screen, such as buttons and scroll bars, as similar to real-world objects. Each GUI object contains data—for example, a button on a screen has a specific size and color. Each object also contains behaviors—for example, each button can be clicked and reacts in a specific way when clicked. Some people consider the term "object-oriented programming" to be synonymous with GUI programming, but object-oriented programming means more.

4 : Describe the components (objects and classes) that are used in the following statement: System.out.println().

Correct Answer : Within the statement System.out.println("First Java application");, the method to which you are passing "First Java application" is named println(). The Java methods println() and print() both produce output. With println(), after the output is displayed, the insertion point moves to the following line so that subsequent output appears on a new line. With print(), however, the insertion point does not advance to a new line, so subsequent output appears at the end of the current line.Within the statement System.out.println("First Java application");, out is an object that is a property of the System class; out refers to the standard output device for a system, normally the monitor. The out object itself is an instance of the PrintStream class, which contains several methods, including println().Within the statement System.out.println("First Java application");, System is a class. Therefore, System defines attributes for System objects, just as the Dog class defines the attributes for Dog objects. One of the System attributes is out. The dots (periods) in System.out.println() are used to separate the names of the components in the statement.

5 : When you define a Java class using an identifier, what are the requirements you need to know?

Correct Answer : You can define a Java class using any name or identifier you need, as long as it meets the following requirements:A Java identifier must begin with a letter of the English alphabet, a non-English letter (such as ? or ?), an underscore, or a dollar sign. A class name cannot begin with a digit.A Java identifier can contain only letters, digits, underscores, or dollar signs.A Java identifier cannot be a reserved keyword, such as public or class.A Java identifier cannot be one of the following values: true, false, or null. These are not keywords (they are primitive values), but they are reserved and cannot be used.

6 : In Java, how do you identify a file as a program file?

Correct Answer : If the program file has a file extension as .java, then the file is identified as a program file. If the extension is not .java, the Java compiler does not recognize the file as containing a Java class.

7 : Why is it important for programmers to use program comments?

Correct Answer : Programmers use comments to leave notes for themselves and for others who might read their programs in the future. At the very least, your Java class files should include comments indicating the author, the date, and the class name or function. The best practice dictates that you also include a brief comment to describe the purpose of each method you create within a class.

8 : What are some of the reasons the javac command might not be recognized?

Correct Answer : Following are some of the reasons the javac command might not be recognized:You made a typo error when typing the command javac.You misspelled the filename.You are not within the correct subfolder or subdirectory on your command line.Java was not installed properly, or the class or classpath variable was not set correctly.

9 : What happens after a programmer successfully compiles a Java program named First.java?

Correct Answer : If you receive no error messages after compiling the code in a file named First.java, the application compiled successfully. In that case, a file named First.class is created and saved in the same folder as the text file that holds the source code. After a successful compile, you can execute the program (run the class file) on any computer that has a Java language interpreter.

10 : If you modify a class, what are the steps you must follow to see your changes in the executing program?

Correct Answer : You must do the following to see your changes in the executing program if you modify a class:1. Save the file with the changes (using the same filename).2. Recompile the class with the javac command.3. Interpret the class bytecode and execute the class using the java command.

11 : Provide examples of logic errors. How do programmers minimize logic errors in their code?

Correct Answer : Examples of logic errors include multiplying two values when you meant to add, printing one copy of a report when you meant to print five, or forgetting to produce a total at the end of a business report when a user has requested one. Errors of this type must be detected by carefully examining the program output. It is the responsibility of the program author to test programs and find any logic errors. Good programming practices can

help to minimize errors.

12 : Explain the purpose of arguments and why it is necessary to pass arguments to a method.

Correct Answer : Arguments are pieces of information that are sent to a method. The act of sending arguments to a method is called passing arguments to the method. You pass arguments to methods so they know what information to work with.

13 : Briefly describe the elements of the main() method: public static void main(String[] args){Java code...}

Correct Answer : In the method public static void main(String[] args), the word public is an access specifier, just as it is when you use it to define the First class.In Java, the reserved keyword static means that a method is accessible and usable even though no objects of the class exist.The keyword void used in the main()method header indicates that the main()method does not return any value when it is called.The name of the method is main().In the method header public static void main(String[] args), the contents between the parentheses, String[] args, represent the type of argument that can be passed to the main() method.

14 : Once an application is written and saved, the Java class must be compiled. Describe the two procedures that must occur in order to view the output of the application.

Correct Answer : 1. You must compile the class you wrote (called the source code) into bytecode.2. You must use the Java interpreter to translate the bytecode into executable statements.

15 : public class FindMyErrors{ public static void main(String[] args) { System.out.println("My application with errors) } In the provided code, identify three separate syntax errors.

Correct Answer : 1. There is a semicolon missing at the end of the println statement that will produce the output.2. There is a missing curly brace. Curly braces must be open and closing pairs.3. There are missing quotation marks in the println statement that will produce the output.

16 : Write a line comment and block comment for the following line of code identifying the author, date, and purpose of the method. In addition, explain the difference between comments that consist of a double slash (//) and those that have a starting and ending slash asterisk (/* .. */). System.out.println("Hello Students");

Correct Answer : Possible comments include the following:// Written by <your name>// Written on <date>/* The println method will output “Hello Students” */// - used for line comments/* - used for block comments */

17 : System.out.println("First Java application"); In the given code, identify and describe the use of a literal string and the use of parentheses.

Correct Answer : A literal string is a series of characters that will appear exactly as entered. Any literal string in Java is written between double quotation marks. The string "First Java application" appears within parentheses because the string is an argument to a method, and arguments to methods always appear within parentheses.

18 : What are the differences between the K & R style and the Allman style? Which one is used in this textbook?

Correct Answer : The indent style in which opening braces do not stand alone on separate lines is known as the K & R style and is named for Kernighan and Ritchie, who wrote the first book

about the C programming language. The indent style in which curly braces are aligned and each occupies its own line is called the Allman style and is named for Eric Allman, a programmer who popularized the style. The Allman style is used throughout this book.

19 : How do you identify a class body and what does a class body contain?

Correct Answer : After the class header, you enclose the contents of a class within curly braces ({ and }); any data items and methods between the curly braces make up the class body. A class body can be composed of any number of data items and methods.

MULTIPLE CHOICE

20 : A program written in ____ is the most basic circuitry-level language.
A : Java
B : machine language
C : BASIC
D : C

Correct Answer : machine language

21 : Every programming language has its own ____ that specifies how language elements are combined correctly to produce usable statements.
A : program statement
B : keyword
C : syntax
D : command

Correct Answer : syntax

22 : Every programming language has a set of reserved names to perform certain tasks. What are these reserved names called?
A : Program statements
B : Keywords
C : Syntax
D : Commands

Correct Answer : Keywords

23 : After the program statements are written in a high-level programming language, a compiler:
A : translates one statement at a time before executing them.
B : translates an entire program into machine code before executing any statement.
C : reads the compiled code line by line at run time.
D : reads an entire program before executing any statement.

Correct Answer : translates an entire program into machine code before executing any statement.

24 : Locating and repairing all syntax errors is part of the process of ____ a program.
A : interpreting
B : compiling
C : debugging
D : executing

Correct Answer : debugging

25 : In programming, named computer memory locations are called ____ because they hold values that might vary.
A : constants
B : variables
C : strings
D : addresses

Correct Answer : variables

26 : ____ are also called modules, methods, functions, and subroutines. Java programmers most frequently use the term "method."
A : Procedures
B : Calls
C : Classes
D : Applications

Correct Answer : Procedures

27 : ____ refers to the hiding of data and methods within an object.
A : Instance
B : Inheritance
C : Attribute
D : Encapsulation

Correct Answer : Encapsulation

28 : A(n) ____ is a characteristic that defines an object.
A : keyword
B : literal string
C : attribute
D : method

Correct Answer : attribute

29 : Ria creates a class named Students for people who attend her chemistry lectures. The Students class has some properties such as student ID, student name, student address, and student grade. Every student in the Students class is:
A : an attribute of the Students class.
B : an instance of the Students class.
C : a state of the Students class.
D : a class definition of the Students class.

Correct Answer : an instance of the Students class.

30 : Consider a scenario where you have a capsule containing a combination of powdered medicine. Let's say that the capsule acts as a class and the combination of powdered medicine acts as variables and methods. What is this whole process called?
A : Inheritance
B : Encapsulation
C : Debugging

D : Polymorphism

Correct Answer : Encapsulation

31 : Consider an example where there is a class called Vehicle and the classes such as a car, bus, or train share the properties of the Vehicle class—that is, they all are used for transportation. Which of the following features or concepts of object-oriented programming is exemplified here?
A : Inheritance
B : Encapsulation
C : Debugging
D : Polymorphism

Correct Answer : Inheritance

32 : ____ describes the feature of languages that allows the same word to be interpreted correctly in different situations based on the context.
A : Polymorphism
B : Encapsulation
C : Inheritance
D : Insulation

Correct Answer : Polymorphism

33 : The ____ creates bytecode that is stored on a disk in a file with a name ending in .class.
A : Java source code
B : Java compiler
C : Java Virtual Machine (JVM)
D : Java interpreter

Correct Answer : Java compiler

34 : Which of the following supports character or text output to a computer screen?
A : Windowed applications
B : Console applications
C : Java Virtual Machine (JVM)
D : Write once, run anywhere (WORA)

Correct Answer : Console applications

35 : ____ are pieces of information that are sent into, or passed to, a method, usually because the method requires the information to perform its task or carry out its purpose.
A : Applets
B : Methods
C : Arguments
D : Objects

Correct Answer : Arguments

36 : A class named first is different from a class named FIRST because ____.
A : Java is case insensitive
B : it is confusing to have two names that look the same
C : Java is case sensitive
D : first and FIRST are different literal strings

Correct Answer : Java is case sensitive

37 : Given the statement System.out.println("First Java application");,out refers to the ____.
A : screen
B : standard output device
C : printer
D : keyboard

Correct Answer : standard output device

38 : A(n) ____ defines the circumstances under which a class can be accessed and the other classes that have the right to use a class.
A : identifier
B : access specifier
C : parameter
D : typecasting

Correct Answer : access specifier

39 : public class First{ public static void main(String[] args) { System.out.println("First Java application"); }}In the given code, which item is the name of the class?
A : public
B : static
C : void
D : First

Correct Answer : First

40 : In Java, the reserved keyword ____ means that a method is accessible and usable even though no objects of the class exist.
A : active
B : undefined
C : static
D : void

Correct Answer : static

41 : { public static void main(String[] args) { System.out.println("First Java application"); }}In the given code, which item is the access specifier?
A : public
B : static
C : void
D : First

Correct Answer : public

42 : Programmers use ____ to organize program code and make it easier to read.
A : literal strings
B : whitespace
C : headings
D : FAQs

Correct Answer : whitespace

43 : public class First { public static void main(String[] args) { System.out.println("First Java application"); } }In the given code, which item is the method's return type?
A : public
B : static
C : void
D : println

Correct Answer : void

44 : public class First { public static void main(String[] args) { System.out.println("First Java application"); } } In the given code, which item identifies that the method will work without instantiating an object of the class?
A : public
B : static
C : void
D : println

Correct Answer : static

45 : It is best to use the ____ available text editor when writing Java programs.
A : most complex
B : simplest
C : best
D : latest

Correct Answer : simplest

46 : public class First { public static void main(String[] args) { System.out.println("First Java application"); } } Given the code, what file name would you select to save this class in a file?
A : first.java
B : First.java
C : first.class
D : First.class

Correct Answer : First.java

47 : Using the given code, which statement in the main()method body will produce the output Hello to all!? public class Hello{ public static void main(String[] args) { _____ }}
A : System.out("Hello to all!");
B : System.println("Hello to all!");
C : println("Hello to all!");
D : System.out.println("Hello to all!");

Correct Answer : System.out.println("Hello to all!");

48 : In a ____ environment, you can change directories using the cd command. For example, to change to a directory named MyClasses, you type cd MyClasses and press Enter.
A : Windows
B : Java
C : graphical
D : DOS

Correct Answer : DOS

49 : After a successful compile, you can run the class file on any computer that has a ____.
A : Java language interpreter
B : web browser
C : text editor
D : DOS environment

Correct Answer : Java language interpreter

50 : If a compiler detects a violation of language rules, it refuses to translate the class to ____.
A : an application
B : a logic error
C : machine code
D : Java

Correct Answer : machine code

51 : ____ is the process a compiler uses to divide your source code into meaningful portions; the message means that the compiler was in the process of analyzing the code when the end of the file was encountered prematurely.
A : Running
B : Debugging
C : Compiling
D : Parsing

Correct Answer : Parsing

52 : ____ is an error not detected until the program asks the computer to do something wrong, or even illegal, while executing.
A : A syntax error
B : A runtime error
C : A package
D : The Java API

Correct Answer : A runtime error

53 : When you run a Java application using the ____ command, do not add the .class extension to the filename.
A : class
B : static
C : java
D : output

Correct Answer : java

54 : A ____ error occurs when the syntax of the program is correct and the program compiles but produces incorrect results when you execute it.
A : logic
B : syntax
C : semantic
D : class

Correct Answer : logic

55 : Line comments start with ____.
A : a forward slash and an asterisk
B : two forward slashes
C : a forward slash and two asterisks
D : a percent sign

Correct Answer : two forward slashes

56 : You execute an application and receive the error message Exception in thread 'main' java.lang.NoClassDefFoundError. This is probably because:
A : the class name is lengthy.
B : the class path is incorrect.
C : the object is missing from the class.
D : the Javadoc is incorrect.

Correct Answer : the class path is incorrect.

57 : ____ comments are a special case of block comments that are used to generate documentation.
A : Single-line
B : Multiline
C : JDoc
D : Javadoc

Correct Answer : Javadoc

58 : Java contains a class named ____ that allows you to produce dialog boxes.
A : JBox
B : JOptionPane
C : JDialog
D : JGUI

Correct Answer : JOptionPane

59 : A(n) ____ is a GUI object resembling a window in which you can place messages you want to display.
A : JDK
B : dialog box
C : variable
D : argument

Correct Answer : dialog box

60 : Whenever a method requires multiple arguments, the arguments are always separated by ____.
A : commas
B : periods
C : forward slashes
D : brackets

Correct Answer : commas

61 : You use an import statement when you want to access a built-in Java class that is contained in a group of classes called a ____.
A : JGroup

B : JImport
C : package
D : GUI

Correct Answer : package

62 : What is the purpose of the argument "null" in the statement below? JOptionPane.showMessageDialog(null, "Show my message");
A : This argument is ignored by Java.
B : The output message should be placed in the upper-left corner of the screen.
C : The output message should l be placed in the center of the screen.
D : It instructs Java to display the message immediately.

Correct Answer : The output message should l be placed in the center of the screen.

63 : The ____ is also called the Java class library; it contains information about how to use every prewritten Java class, including lists of all the methods you can use with the classes.
A : Java package
B : Java interface
C : Java SDK
D : Java API

Correct Answer : Java API

TRUE/FALSE

64 : Computer equipment is a set of instructions for a computer to carry out certain operations.
A : true
B : false

Correct Answer : false

65 : System software is used for tasks such as word processing, calculations, and playing games.
A : true
B : false

Correct Answer : false

66 : If an object's methods are well written, the user can be unaware of the low-level details of how the methods are executed, and the user must simply understand the interface or interaction between the method and the object.
A : true
B : false

Correct Answer : true

67 : A Java identifier can contain only letters, digits, ampersands, or number signs.
A : true
B : false

Correct Answer : false

68 : You must use the Java interpreter to translate bytecode into executable statements before running a Java application.
A : true
B : false

Correct Answer : true

69 : When you issue the command to compile a class containing errors, the Java compiler does not produce any error messages. You will first need to run the class in order to see error messages.
A : true
B : false

Correct Answer : false

70 : Logic errors are easily detected when the program is compiled.
A : true
B : false

Correct Answer : false

71 : Although not a requirement, it is a Java standard that class identifiers begin with an uppercase letter and use other uppercase letters to improve readability.
A : true
B : false

Correct Answer : true

72 : A compiler ignores whitespace (that is, any combination of nonprinting characters) between words and lines.
A : true
B : false

Correct Answer : true

73 : Dots (or periods) in a Java statement are used to separate the names of the components that make up the statement.
A : true
B : false

Correct Answer : true

74 : Using the void keyword in the main() method header indicates that a value will be returned by the main() method.
A : true
B : false

Correct Answer : false