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Chapter 1

1. A computer consists of various devices referred to as \_\_\_\_\_\_\_\_ (e.g., the keyboard, screen, mouse, hard disks, memory, DVD drives and processing units).

a. objects

b. software

c. hardware

d. groupware

2. Explain what is Moore's Law.

The number of compacted integrated circuits has doubled every two years.

Chapter 2

3. What will be output after the following Java statements have been executed (assume all variables are of type int)?

**int a = 4, b = 12, c = 37, d = 51;**

**if ( a < b ) System.out.println( "a < b" );**

**if ( a > b ) System.out.println( "a > b" );**

**if ( d <= c ) System.out.println( "d <= c" );**

**if ( c != d ) System.out.println( "c != d" );**

4. List **five** format specifiers and the purpose of the format specifier when found in a printf format string.

%f for float numbers

%i for integer numbers

%s for strings

%d for decimal numbers

%c for characters

Chapter 3/4

5. Which of the following is *true*?

a. Pseudocode is used to describe an algorithm.

b. Pseudocode is *not* an actual computer programming language.

c. Pseudocode is used to describe executable statements that will eventually be translated by the programmer into a program.

d. All of the above.

6. A decision symbol in a flowchart diagram takes the shape of a \_\_\_\_\_\_\_\_.

a. Diamond.

b. Rectangle.

c. Circle.

d. Triangle.

7. Assuming we have integer variables x = 15, y = 8, z = 7; what are the output values for a, b, c, x, y, and z after the statements below executed?

**int a = ++x + (y++ / z);**

**int b = x++ \* ( 2\*y++ ) + z--;**

**int c = x-- + ( 3\*(--y) + z-- );**

**System.out.printf("%d, %d, %d, %d, %d, %d\n",a,b,c,x,y,z);**

a = 17

b = 295

c = 50

x = 16

y = 10

z = 5

8. What is the output of the following Java code with switch/case statements if the value of abc is initialized to 10***:***

**int abc = 10, xyz = ( abc++ % 4) \* ( abc \* 3);**

**switch(xyz)**

**{**

**case 60:**

**System.out.print("060");**

**case 66:**

**case 72:**

**System.out.print("6672");**

**case 78:**

**System.out.print("667278"); break;**

**default:**

**System.out.print("No Answer ..."); break;**

**}**

a. No Answer

b. 06066727278

c. 6672667278

d. 060667278

e. 6672

9. What is the value of **someSum** after the execution of the following forloop in Java:

**int someSum = 0;**

**for(int index = 9; index > -3; index-=3)**

**{**

**someSum += (index % 4);**

**}**

**someSum = 3**

10. Which of the following is equivalent to this code segment?

**int total = 0;**

**for (int i = 0; i <= 20; i += 2)**

**total += i;**

1. int total = 0;  
   for (int i = 20; i < 0; i += 1) total += i;
2. int total = 0;  
   for (int i = 0; i <= 20; total += i, i += 2);
3. int total = 0;  
   for (int i = 0, i <= 20, total += i; i += 2);
4. int total = 0;  
   for (int i = 2; i < 20; total += i, i += 2);
5. None of the above

Chapter 5/18

11. What is the value returned in the following function named: **mystery\_two**, if we pass x=4?

**int mystery\_two(int x) {**

**if ( x < 3 ) return 1;**

**return 3\*mystery\_two(x-1) + 2\*mystery\_two(x-2);**

**}**

**mystery\_two(4) returns 13**

Chapter 6

12. What do the following statements do?

**double[] array;  
array = new double[14];**

a. Create a double array containing 13 elements.

b. Create a double array containing 14 elements.

c. Create a double array containing 15 elements.

d. Declare but do not create a double array.

13. An argument type followed by a(n)  in a method’s parameter list indicates that the method receives a variable number of arguments of that particular type.

a. square brackets ([])

b. ellipsis (...)

c. varargs keyword

d. All of the above are acceptable to indicate a variable number of arguments.

Chapter 7/8/9

14. Create Java class named **Employee**. Include private member variables with the following names and data types:

FirstName as String type LastName as String type

IsSalaried as Boolean PayRate as float

Include the constructor named **Employee**, and this constructor takes on the following three parameters to populate the private member variables: **myFirstName, myLastName,** and **myPayRate** using the appropriate data types. Initialize **IsSalaried** to false in the constructor. Include public getter and setter methods (the setters should have parameters for us to change the value of the respective member variable) for the following private member variables: FirstName, LastName, IsSalaried, and PayRate. There should be a total of 9 methods (1 constructor and 8 getter/setters for the four member variables specified).

Class Employee {

private String FirstName;

private String LastName;

private Boolean IsSalaried;

private float PayRate;

Employee(String myFirstName,String myLastName,float myPayRate){

setFirstName(myFirstName);

setLastName(myLastName);

setPayRate(myPayRate);

setIsSalaried(false);

}

public void setFirstName(String myFirstName) {

FirstName = myFirstName;

}

public String getFirstName() {

return FirstName;

}

public void setLastName (String myLastName) {

LastName= myLastName;

}

public String getLastName () {

return LastName;

}

public void setPayRate (float myPayRate) {

PayRate = myPayRate;

}

public float getPayRate () {

return PayRate;

}

public void setIsSalaried (Boolean MyIsSalaried){

IsSalaried = MyIsSalaried;

}

public Boolean getIsSalaried(){

return IsSalaried;

}

}

15. Composition is sometimes referred to as a(n) \_\_\_\_\_\_\_\_, and inheritance is sometimes referred to as a(n) \_\_\_\_\_\_\_\_\_.

*a. is-a* relationship, *has-*a relationship

*b. has-*a relationship, *is-a* relationship

*c. many-to-one* relationship, *is-a* relationship

*d. one-to-many* relationship, *has-a* relationship

16. An advantage of inheritance is that:

a. All methods can be inherited.

b. All instance variables can be uniformly accessed by subclasses and superclasses.

c. Objects of a subclass can be treated like objects of their superclass.

d. None of the above.

17. When a subclass constructor calls its superclass constructor, what happens if the superclass’s constructor does not assign a value to an instance variable?

a. A syntax error occurs.

b. A compile-time error occurs.

c. A run-time error occurs.

d. The program compiles and runs because the instance variables are initialized to their default values.

Chapter 10

18. A(n)  class cannot be instantiated.

a. final.

b. concrete.

c. abstract.

d. polymorphic.

19. Which of the following does *not* complete the sentence correctly?

An interface .

a. forces classes that implement it to declare all the abstract interface methods.

b. can be used in place of an abstract class when there is no default implementation to inherit.

c. is declared in a file by itself and is saved in a file with the same name as the interface followed by the .java extension.

d. can be instantiated.

Chapter 11

20. Name five built in Java exception classes and describe their purpose.

toString -returns the class name

IllegalArgumentException -argument used for the method

Arrayoutofbounds – accessing outside of an array

getMessage -returns a message about the exception

NullpointerException -error with null