Exam2 Review Question
Answer Key

Review Questions: Chapter6

1. A structure that allows repeated execution of a block of statements is a ___________.

   a. cycle

   b. loop

   c. ring

   d. band

2. A loop that never ends is a(n) ___________ loop.

   a. iterative

   b. infinite

   c. structured

   d. illegal

3. To construct a loop that works correctly, you should initialize a loop control ___________.

   a. variable

   b. constant

   c. structure

   d. condition

4. What is the output of the following code?

```
b = 1;
while(b < 4)
   System.out.print(b + " ");
```

   a. 1

   b. 1 2 3

   c. 1 2 3 4

   d. 1 1 1 1 1...

   When b is 1, the comparison in the while statement is true, so 1 prints. The comparison is made again, it is still true (because b is still 1), and 1 prints again. The value 1 prints infinitely because b is never altered.

5. What is the output of the following code?

```
b = 1;
while(b < 4)
{
   System.out.print(b + " ");
   b = b + 1;
}
```

a. 1

b. 1 2 3

c. 1 2 3 4

d. 1 1 1 1 1...

When b is 1, the comparison in the while statement is true, so 1 is output. Then b becomes 2, the Boolean evaluation is still true, and 2 is output. The b becomes 3, the Boolean evaluation is true and 3 is output. Then b becomes 4, the Boolean expression is false, and the loop ends.

6. What is the output of the following code?

```
e = 1;
while(e < 4);
   System.out.print(e + " ");
```

a. nothing

b. 1 1 1 1 1 1...

c. 1 2 3 4

d. 4 4 4 4 4 4...

The semicolon at the end of the second line creates an empty loop body. The value of e remains 1 forever; it keeps being compared to 4 infinitely.

7. If `total = 100` and `amt = 200`, then after the statement `total += amt`, ___________.

a. `total` is equal to 200

b. `total` is equal to 300

c. `amt` is equal to 100

d. `amt` is equal to 300

The statement `total += amt` is equivalent to `total = total + amt`.

8. The prefix ++ is a ____________ operator.

a. unary

b. binary

c. tertiary

d. postfix

9. If `g = 5`, then after `h = ++g`, the value of `h` is ____________.

a. 4

b. 5

c. 6

d. 7

10. If `m = 9`, then after `n = m++`, the value of `m` is ____________.

a. 8

b. 9

c. 10

d. 11

After the expression has been evaluated, `m` will have been increased to 10.

11. If `m = 9`, then after `n = m++`, the value of `n` is ____________.

a. 8

b. 9

c. 10

d. 11

The variable `n` receives the value of `m` prior to incrementing.

12. If `j = 5` and `k = 6`, then the value of `j++ == k` is ____________.

a. 5

b. 6

c. `true`

d. `false`

The value of j++ is 5, so it does not equal k. After this statement executes, j will be 6, but that will be after the value of this comparison has been determined.

13. You must always include ____________ in a `for` loop's parentheses.

a. two semicolons

b. three semicolons

c. two commas

d. three commas

14. What does the following statement output?

```
for(a = 0; a < 5; ++a)
   System.out.print(a + " ");
```

a. 0 0 0 0 0

b. 0 1 2 3 4

c. 0 1 2 3 4 5

d. nothing

15. What does the following statement output?

```
for(b = 1; b > 3; ++b)

   System.out.print(b + " ");
```

a. 1 1 1

b. 1 2 3

c. 1 2 3 4

d. nothing

The variable b is assigned 1. The middle portion of the for statement is false, so the body never executes.

16. What does the following statement output?

```
for(f = 1, g = 4; f < g; ++f, --g)
   System.out.print(f + " " + g + " ");
```

a. 1 4 2 5 3 6 4 7...

b. 1 4 2 3 3 2

c. 1 4 2 3

d. nothing

The variable f is 1 and g is 4, so f is less than g and 1 and 4 are displayed. Then the third part of the for statement executes and f is increased to 2 and g is reduced to 3. The comparison f < g is still true so 2 and 3 are displayed. Then f becomes 3 and g becomes 2. The comparison f < g is now false and the loop ends.

17. The loop that performs its conditional check at the bottom of the loop is a ____________ loop.

a. `while`

b. `do...while`

c. `for`

d. `for...while`

18. What does the following program segment output?

```
d = 0;
do
{
   System.out.print(d + " ");
   d++;
} while (d < 2);
```

a. 0

b. 0 1

c. 0 1 2

d. nothing

The variable d is 0 and it is output. Then d becomes 1 and the comparison d < 2 is made. It is true, so 1 is displayed and d becomes 2. Now the comparison at the bottom of the loop is false and the loop ends.

19. What does the following program segment output?

```
for(f = 0; f < 3; ++f)
   for(g = 0; g < 2; ++g)
      System.out.print(f + " " + g + " ");
```

a. 0 0 0 1 1 0 1 1 2 0 2 1

b. 0 1 0 2 0 3 1 1 1 2 1 3

c. 0 1 0 2 1 1 1 2

d. 0 0 0 1 0 2 1 0 1 1 1 2 2 0 2 1 2 2

First f is set to 0. Because it is less than 3, the second for loop starts. In the inner loop, g is 0, g < 2 is true, and f and g are output (0 0). Then g is increased to 1; g < 2 is still true and f and g are output (0 1). Then g is 2 and the inner loop ends. In the outer loop, f becomes 1. It is less than 3, and so the inner loop starts over, displaying 1 0 and 1 1. Then when f is 2, 2 0 and 2 1 display.

20. What does the following program segment output?

```
for(m = 0; m < 4; ++m);
   for(n = 0; n < 2; ++n);
      System.out.print(m + " " + n + " ");
```

a. 0 0 0 1 1 0 1 1 2 0 2 1 3 0 3 1

b. 0 1 0 2 1 1 1 2 2 1 2 2

c. 4 2

d. 3 1

In the first line, m is 0 and the comparison is true. However, because of the semicolon, the loop body is empty and m becomes 2, then 3, then 4. Then the second line executes. Again, it contains an empty loop because of the semicolon, so n is 0, then 1, then 2. Finally, the third line executes, displaying 4 and 2.

Review Questions: Chapter 7

1. A sequence of characters enclosed within double quotation marks is a ____________.

    a. symbolic string

    b. literal string

    c. prompt

    d. command

2. To create a `String` object, you can use the keyword ____________ before the constructor call, but you are not required to use this format.

    a. `object`

    b. `create`

    c. `char`

    d. `new`

3. A `String` variable name is a ____________.

    a. reference

    b. value

    c. constant

    d. literal

4. The term that programmers use to describe objects that cannot be changed is ____________.

    a. irrevocable

    b. nonvolatile

    c. immutable

    d. stable

5. Suppose that you declare two `String` objects as:

```
String word1 = new String("happy");
```

```
String word2;
```

`When you` ask a user to enter a value for `word2`, if the user types “happy”, the value of `word1 == word2` is ___________.

a. `true`

b. `false`

c. illegal

d. unknown

When you use == with `String`s, you compare their memory addresses, not their contents.

6. If you declare two `String` objects as:

```
String word1 = new String("happy");
```

```
String word2 = new String("happy");
```

the value of `word1.equals(word2)` is ___________.

a. `true`

b. `false`

c. illegal

d. unknown

The `equals()` method returns `true` when the string contents are identical, including case.

7. The method that determines whether two `String` objects are equivalent, regardless of case, is ___________.

a. `equalsNoCase()`

b. `toUpperCase()`

c. `equalsIgnoreCase()`

d. `equals()`

8. If a `String` is declared as:

   `String aStr = new String("lima bean");`

   then `aStr.equals("Lima Bean")` is ___________.

   a. `true`

   b. `false`

   c. illegal

   d. unknown

   The `equals()` method returns `true` when the string contents are identical, including case.

9. If you create two `String` objects:

   `String name1 = new String("Jordan");`

   `String name2 = new String("Jore");`

   then `name1.compareTo(name2)` has a value of ___________.

   a. `true`

   b. `false`

   c. –1

   d. 1

   The “d” in “Jordan” is one less than the “e” in “Jore”.

10. If `String myFriend = new String("Ginny");`, which of the following has the value 1?

    a. `myFriend.compareTo("Gabby");`

    b. `myFriend.compareTo("Gabriella");`

    c. `myFriend.compareTo("Ghazala");`

    d. `myFriend.compareTo("Hammie");`

    The value of answer a is -8 because although the “G”s are the same, the “a” in “Gabby” is 8 less than the “i” in Ginny. The value of answer b is -8 for the same reason. The value of answer c is

1 because the “h” is Ghazala is one more than “i”. The value of answer d is -1 because the “H” in “Hammie is one less than the “G” in “Ginny”.

11. If `String movie = new String("West Side Story");`, the value of `movie.indexOf('s')` is ___________.

    a. `true`

    b. `false`

    c. 2

    d. 3

    The ‘W’ is in position 0, the ‘e’ is in position 1, and the ‘s’ is in position 2.

12. The `String` class `replace()` method replaces ___________.

    a. a `String` with a character

    b. one `String` with another `String`

    c. one character in a `String` with another character

    d. every occurrence of a character in a `String` with another character

13. The `toString()` method converts a(n) ___________ to a `String`.

    a. `char`

    b. `int`

    c. `float`

    d. all of the above

14. Joining `String`s with a plus sign is called ___________.

    a. chaining

    b. concatenation

    c. parsing

    d. linking

15. The first position in a `String` ___________.

a. must be alphabetic

b. must be uppercase

[✓ c. is position zero]

d. is ignored by the `compareTo()` method

16. The method that extracts a string from within another string is ___________.

a. `extract()`

b. `parseString()`

[✓ c. `substring()`]

d. `append()`

17. The method `parseInt()` converts a(n) ___________.

a. integer to a `String`

b. integer to a `Double`

c. `Double` to a `String`

[✓ d. `String` to an integer]

18. The difference between `int` and `Integer` is ___________.

[✓ a. `int` is a primitive type; `Integer` is a class]

b. `int` is a class; `Integer` is a primitive type

c. nonexistent; both are primitive types

d. nonexistent; both are classes

19. For an alternative to the `String` class, and so that you can change a `String`’s contents, you can use ____________.

a. `char`

b. `StringHolder`

c. `StringBuilder`

d. `StringMerger`

20. Unlike when you create a `String`, when you create a `StringBuilder`, you must use the keyword ____________.

a. `buffer`

b. `new`

c. `null`

d. `class`

Review Questions: Chapter 8

1. An array is a list of data items that ______________.

   a. all have the same type

   b. all have different names

   c. all are integers

   d. all are `null`

2. When you declare an array, ______________.

   a. you always reserve memory for it in the same statement

   b. you might reserve memory for it in the same statement

   c. you cannot reserve memory for it in the same statement

   d. the ability to reserve memory for it in the same statement depends on the type of the array

3. You reserve memory locations for an array when you ______________.

   a. declare the array name

   b. use the keyword `new`

   c. use the keyword `mem`

   d. use the keyword `size`

4. For how many integers does the following statement reserve room?

   ```
   int[] value = new int[34];
   ```

   a. 0

   b. 33

   c. 34

   d. 35

5. Which of the following can be used as an array subscript?

   a. character

   b. `double`

   c. `int`

   d. `String`

6. If you declare an array as follows, how do you indicate the final element of the array?

   ```
   int[] num = new int[6];
   ```

   a. `num[0]`

   b. `num[5]`

   c. `num[6]`

   d. impossible to tell

7. If you declare an integer array as follows, what is the value of `num[2]`?

   ```
   int[] num = {101, 202, 303, 404, 505, 606};
   ```

   a. 101

   b. 202

   c. 303

   d. impossible to tell

8. Array names represent ______________.

   a. values

   b. functions

   c. references

   d. allusions

9. Unicode value '\u0000' is also known as ______________.

a. `nil`

b. `void`

c. `nada`

d. `null`

10. When you initialize an array by giving it values upon creation, you ______________.

a. do not explicitly give the array a size

b. also must give the array a size explicitly

c. must make all the values zero, blank, or `false`

d. must make certain each value is different from the others

11. In Java, you can declare an array of 12 elements and initialize _____.

a. only the first one

b. all of them

c. Both of these are true.

d. Neither of these is true.

12. Assume an array is declared as follows. Which of the following statements correctly assigns the value 100 to each of the array elements?

```
int[] num = new int[4];
```

a. `for(x = 0; x < 3; ++x) num[x] = 100;`

b. `for(x = 0; x < 4; ++x) num[x] = 100;`

c. `for(x = 1; x < 4; ++x) num[x] = 100;`

d. `for(x = 1; x < 5; ++x) num[x] = 100;`

13. Suppose you have declared an array as follows:

```
int[] creditScores = {670, 720, 815};
```

What is the value of `creditScores.length`?

a. `0`

b. `1`

c. `2`

d. `3`

14. If a class named `Student` contains a method `setID()` that takes an `int` argument and you write an application in which you create an array of 20 `Student` objects named `scholar`, which of the following statements correctly assigns an ID number to the first `Student` `scholar`?

a. `Student[0].setID(1234);`

b. `scholar[0].setID(1234);`

c. `Student.setID[0](1234);`

d. `scholar.setID[0](1234);`

15. A parallel array is one that _____.

a. holds values that correspond to those in another array

b. holds an even number of values

c. is placed adjacent to another array in code

d. is placed adjacent to another array in memory

16. In which of the following situations would setting up parallel arrays be most useful?

a. You need to look up an employee’s ID number to find the employee’s last name.

b. You need to calculate interest earned on a savings account balance.

c. You need to store a list of 20 commonly misspelled words.

d. You need to determine the shortest distance between two points on a map.

17. When you pass an array element to a method, the method receives ______________.

a. a copy of the array

b. the address of the array

c. a copy of the value in the element

d. the address of the element

18. A single array element of a primitive type is passed to a method by _____.

a. value

b. reference

c. address

d. osmosis

19. When you pass an array to a method, the method receives ______________.

a. a copy of the array

b. a copy of the first element in the array

c. the address of the array

d. nothing

20. If a method should return an array to its calling method _____.

a. the method’s return type must match its parameter type

b. the return type in the method header is preceded by an ampersand

c. the return type in the method header is followed by square brackets

d. A Java method cannot return an array.

Review Questions: Chapter 9

1. When you place objects in order beginning with the object with the highest value, you are sorting in ______________ order.

    a. acquiescing

    b. ascending

    c. demeaning

    d. descending

2. Using a bubble sort involves ______________.

    a. comparing parallel arrays

    b. comparing each array element to the average

    c. comparing each array element to the adjacent array element

    d. swapping every array element with its adjacent element

3. When you use a bubble sort to perform an ascending sort, after the first pass through an array, the largest value is _____.

    a. at the beginning of the list

    b. in the middle of the list

    c. at the end of the list

    d. It is impossible to determine the answer without more information.

4. When you use a bubble sort to perform an ascending sort, after the first pass through an array, the smallest value is _____.

    a. at the beginning of the list

    b. in the middle of the list

    c. at the end of the list

    d. It is impossible to determine the answer without more information.

5. When array elements are objects, you usually want to sort based on a particular ______________ of the object.

[✓ a. field]

b. method

c. name

d. type

6. The following defines a ______________ array:

```
int[][] nums={ {1, 2}, {3, 4}, {5, 6} };
```

a. one-dimensional

[✓ b. two-dimensional]

c. three-dimensional

d. six-dimensional

7. How many rows are contained in the following array?

```
double[][] prices = { {2.56, 3.57, 4.58, 5.59},
                      {12.35, 13.35, 14.35, 15.00} };
```

a. 1

[✓ b. 2]

c. 4

d. 8

8. How many columns are contained in the following array?

```
double[][] prices = { {2.56, 3.57, 4.58, 5.59},
                      {12.35, 13.35, 14.35, 15.00} };
```

a. 1

b. 2

[✓ c. 4]

d. 8

9. In the following array, what is the value of `code[2][1]`?

```
char[][] code = { {'A', 'D', 'M'},
                  {'P', 'R', 'S'},
                  {'U', 'V', 'Z'} };
```

a. `'P'`

b. `'R'`

c. `'U'`

[✓ d. `'V'`]

10. In the following array, what is the value of address[1][1]?

```
String address = { {"123 Oak", "345 Elm"},
                   {"87 Maple", "901 Linden"} };
```

a. `"123 Oak"`

b. `"345 Elm"`

c. `"87 Maple"`

[✓ d. `"901 Linden"`]

11. In the following array, what is the value of `fees.length`?

```
double[][] fees = { {3.00, 3.50, 4.00, 5.00},
                    {6.35, 7.35, 8.35, 9.00} };
```

[✓ a. 2]

b. 4

c. 8

d. None of the above

12. In the following array, what is the value of `fees[1].length`?

```
double[][] fees = { {3.00, 3.50, 4.00, 5.00},
                    {6.35, 7.35, 8.35, 9.00} };
```

a. 2

b. 4

c. 8

d. None of the above

13. You place ____ after the data type in the parameter list of a method that receives a two-dimensional array.

a. a pair of empty brackets

b. two pairs of empty brackets

c. a pair of brackets that contain the number of rows followed by a pair of empty brackets

d. a pair of empty brackets followed by brackets that contain the number of columns

14. A ____ array has rows of different lengths.

a. ragged

b. jagged

c. haggard

d. tattered

15. If the value of `credits[0].length` is not equal to `credits[1].length`, you know credits is _____.

a. a three-dimensional array

b. an uninitialized array

c. a partially populated array

d. a ragged array

16. Which of the following is true if a successfully running program contains the following statement:

```
Arrays.fill(tax, 10);
```

a. `tax` is a two-dimensional array.

b. `fill()` is a nonstatic method.

c. `tax` is an array with 10 elements.

d. none of the above

17. Which of the following is a requirement when you use a binary search method with an array?

a. The array must be numeric.

b. The array must have been sorted in ascending order.

c. The array must have at least three elements.

d. none of the above

18. The chief advantage to using the `ArrayList` class instead of the `Arrays` class is that an `ArrayList` _____.

a. can be much larger

b. is easier to search

c. is dynamically resizable

d. can be used as an argument to a `static` method

19. The chief disadvantage to using the `ArrayList` class instead of the `Arrays` class is that an `ArrayList` _____.

a. cannot be sorted

b. cannot store primitive data types

c. cannot be accessed using subscripts

d. All of the above are disadvantages to using an `ArrayList`.

20. An advantage to using an enumerated data type is _____.

a. errors are reduced because only a limited set of values can be used with the type

b. time is saved because programs with enumerated types compile faster

c. coding time is reduced because enumerated types are created automatically by the compiler

d. All of the above are true.

Review Questions: Chapter 10

1. A way to discover which of two classes is the base class and which is the subclass is to ____________.

   a. look at the class size

   b. try saying the two class names together

   c. use polymorphism

   d. Both a and b are correct.

2. Employing inheritance reduces errors because ____________.

   a. the new classes have access to fewer data fields

   b. the new classes have access to fewer methods

   c. you can copy methods that you already created

   d. many of the methods you need have already been used and tested

3. A base class can also be called a ____________.

   a. child class

   b. subclass

   c. derived class

   d. superclass

4. Which of the following choices is the best example of a parent class/child class relationship?

   a. `Rose/Flower`

   b. `Present/Gift`

   c. `Dog/Poodle`

   d. `Sparrow/Bird`

5. The Java keyword that creates inheritance is ____________.

   a. `static`

   b. `enlarge`

   [✓ c. `extends`]

   d. `inherits`

6. A class named `Building` has a `public`, nonstatic method named `getFloors()`. If `School` is a child class of `Building`, and `modelHigh` is an object of type `School`, which of the following statements is valid?

   a. `Building.getFloors();`

   b. `School.getFloors();`

   [✓ c. `modelHigh.getFloors();`]

   d. All of the previous statements are valid.

7. Which of the following statements is true?

   [✓ a. A child class inherits from a parent class.]

   b. A parent class inherits from a child class.

   c. Both of the preceding statements are true.

   d. Neither a nor b is true.

8. When a subclass method has the same name and argument types as a superclass method, the subclass method ____________ the superclass method.

   [✓ a. overrides]

   b. overuses

   c. overloads

   d. overcompensates

9. When you instantiate an object that is a member of a subclass, the ____________ constructor executes first.

   a. subclass

   b. child class

   c. extended class

   d. parent class

10. The keyword `super` always refers to the ____________ of the class in which you use it.

    a. child class

    b. derived class

    c. subclass

    d. parent class

11. If the only constructor in a superclass requires arguments, its subclass ____________.

    a. must contain a constructor

    b. must not contain a constructor

    c. must contain a constructor that requires arguments

    d. must not contain a constructor that requires arguments

12. If a superclass constructor requires arguments, any constructor of its subclasses must call the superclass constructor ____________.

    a. as the first statement

    b. as the last statement

    c. at some time

    d. multiple times if multiple arguments are involved

13. A child class `Motorcycle` extends a parent class `Vehicle`. Each class constructor requires one `String` argument. The `Motorcycle` class constructor can call the `Vehicle` class constructor with the statement ___________.

    a. `Vehicle(“Honda”);`

    b. `Motorcycle(“Harley”);`

    c. `super(“Suzuki”);`

    d. none of the above

14. In Java, the concept of keeping data private is known as ___________.

    a. polymorphism

    b. information hiding

    c. data deception

    d. concealing fields

15. If you create a data field or method that is ___________, it can be used within its own class or in any classes extended from that class.

    a. `public`

    b. `protected`

    c. `private`

    d. both a and b

16. Within a subclass, you cannot override ___________ methods.

    a. `public`

    b. `private`

    c. `static`

    d. constructor

17. You call a `static` method using ____________.

a. the name of its class, a dot, and the method name

b. the name of the class’s superclass, a dot, and the method name

c. the name of an object in the same class, a dot, and the method name

[✓ d. either a or b]

18. You use a ____________ method access specifier when you create methods for which you want to prevent overriding in extended classes.

a. `public`

b. `protected`

[✓ c. `final`]

d. subclass

19. A compiler can decide to ____________ a `final` method—that is, determine the code of the method call when the program is compiled.

a. duplicate

[✓ b. inline]

c. redline

d. beeline

20. When a parent class contains a `static` method, child classes ____________ override it.

a. frequently

b. seldom

c. must

[✓ d. cannot]