**Homework #1 CS 111, Programming Fundamentals II**

This is the first of 4 homework assignments. It is meant to review CS 110 of Object-Oriented Programming, Java Fundamentals, Decision Structures, Loops and Files, Methods, A First Look at Classes, Arrays and the ArrayList Class. This also focuses on the start of CS 111 of “A Second Look at Classes and Objects.” Much of this homework should be review, from CS110. The questions are worth as indicated below (for a total of 40 points). There are two programming tasks, each worth 30 points. Start NOW.

Questions – 40 points

Submit via Canvas, the docx answer file, “Homework 1 Answer sheet”, as a single document that contains your answers to the questions below. The first questions are a review for of CS110.

Each answer is worth 2 points.

1. Short Answer. Why should an object hide its data?

2. When Java converts a lower-ranked value to a higher-ranked type, it is called a(n):

a. 4-bit conversion

b. Escalating conversion

c. Widening conversion

d. Narrowing conversion

3. The following statement should determine whether count is outside the range of 0 through 100. It is wrong? Re-write it correctly on the “Homework 1 Answer sheet”.

If (count >= 0 || count <= 100)

4. When using the PrintWriter class, which of the following import statements would you write near the top of your program?

a. import javax.swing.\*;

b. iimport java.io.\*;

c. iimport PrintWriter;

d. iimport java.file.\*;

5. Algorithm. Write a method named square that accepts an integer argument and returns the square of that argument.

6. Short Answer. Why are the constructors useful for performing "start-up" operations?

7. Subscript numbering always starts at what value?

a. 0

b. 1

c. -1

d. None of the above

8. By default, Java initializes array elements with what value?

a. 0

b. 100

c. 1

d. -1

9. What will be the results of the following code?

final int ARRAY\_SIZE = 5;

float[] x = float[ARRAY\_SIZE];

for(int i = 1; i <= ARRAY\_SIZE; i++) {

x[i] = 10.0;

}

a. All the values in the array are initialized to 10.0

b. All the values, except the first, are set to 10.0

c. An error will occur when the program runs.

d. There will be a compilation error

10. When an array is passed to a method:

a. a reference to the array is passed

b. it is passed just as an object

c. the method has direct access to the original array

d. All of the above

11. What will be the value of x[1] after the following code is executed?

int[] x = {22, 33, 44};

arrayProcess(x[1]);

...

public static void arrayProcess(int a) {

a = a + 5;

}

a. 27

b. 33

c. 38

d. 49

12. If numbers is a two-dimensional array, which of the following would give the length of row r?

a. numbers.length

b. numbers.length[r]

c. numbers[r].length[r]

d. numbers[r].length

13. Which of the following for loops is valid, given the following declaration?

String[] names = {"abc", "def", "ghi", "jkl"};

a. for (int i = 0; i < names.length; i++)

System.out.println(names[i].length);

b. for (int i = 0; i < names.length(); i++)

System.out.println(names[i].length);

c. for (int i = 0; i < names.length; i++)

System.out.println(names[i].length());

d. for (int i = 0; i < names.length(); i++)

System.out.println(names[i].length());

14. For the following code, what would be the value of str[2]?

String[] str = {"abc", "def", "ghi", "jkl"};

a. "ghi"

b. "def"

c. A reference to the String "ghi"

d. A reference to the String "def"

15. True or False. An ArrayList object automatically expands in size to accommodate the items stored in it.

16. This ArrayList class method is used to insert an item into an ArrayList.

a. insert c. store

b. add d. putItem

17. Static methods can only operate on \_\_\_\_\_\_\_\_\_\_\_\_ fields.

a. instance

b. static

c. global

d. local

18. Which of the following is not true about static methods?

a. It is not necessary for an instance of the class to be created to execute the method.

b. They are created by placing the key word static after the access specifier in the method header.

c. They are called from an instance of the class.

d. They are often used to create utility classes that perform operations on data, but have no need to collect and store data.

19. Java automatically stores this value in all uninitialized static member variables:

a. 0

b. -1

c. null

d. false

20. What does the following statement do?

double[] array1 = new double[10];

a. Declares array1 to be a reference to an array of double values

b. Creates an instance of an array of 10 double values

c. Will allow valid subscripts in the range of 0 - 9

d. All of the above