Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**AP Computer Science A Semester 1 Exam Review**

**1) escape sequences**

System.out.println("Where are the \n\t " + "\\escape sequences?\\\"");

What is the output from the above statement? Write your answer below.

**2) math expressions**

What is the output from the following statement? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

System.out.println(45 / 2 + 15 % 4 + 4.5);

**3) for Loops**

public static int compute(int n) {

for (int i = 1; i < 4; i++)

n \*= 2;

return n;

}

What is the output for n = 5? Place your answer below.

**4) nested for Loops**

public class NestedForLoops {  
 public static void main(String[] args) {  
 for (int i = 1; i <= 10; i+=2) {  
 for (int j = i; j <= 5; j++)  
 System.out.print(j);  
 System.out.println();  
 }  
 }

}

What is the output? Place your answer below.

**5) while loops**

Write a method named randomNumbers that generates integer random numbers from 2 to 10 inclusive, until a value of 6 is obtained. The method also counts and then returns the number of random numbers generated in order to obtain a 6. For example, if a 6 is generated on the first try, 1 is returned and if a 6 is generated on the third try, 3 is returned. Write your code below.

**6) substrings**

Given

String s = “GoldStandard”;

String s1 = s.substring(5, 10);

String s2 = s1.substring(1,2);

System.out.println(s1 + s2);

What will be printed? \_\_\_\_\_\_\_\_\_\_\_

(A)tandat

(B)Standata

(C)tandaa

(D)tandarta

(E)StandS

**7) method overloading**

Which of the following method overloading groups below, is/are incorrect? Each of the groupings is within a class. \_\_\_\_\_\_\_\_\_

I. II.

public static int Testing(); public static int Testing();

public static int Testing(int n); public static int Testing(int t);

public static int Testing(double n); public static double Testing(int t);

(A) I and II

(B) I only

(C) II only

(D) None of the above

**8) arrays and swapping element values**

Assume that an array of integer values has been declared as follows and has been initialized.

int[] arr = new int[10];

Which of the following segments correctly swaps the value of arr[3] and arr[5]? \_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. arr[3] = 5;   arr[5] = 3; | 1. arr[3] = arr[5];   arr[5] = arr[3]; | 1. int k = arr[5];   arr[3] = arr[5];  arr[5] = k; | 1. int k = arr[3];   arr[3] = arr[5];  arr[5] = k; | 1. int k = arr[5];   arr[5] = arr[3];  arr[3] = arr[5]; |

**9) arrays**

Write a method called *append* that accepts two integer arrays as parameters and returns a new array named *result* that contains the result of appending the second array’s values at the end of the first array. For example, if arrays numbers1[] and numbers2[] store [2, 4, 6] and [1, 2, 3, 4] respectively, the call to append(numbers1, numbers2) should return a new array containing [2, 4, 6, 1, 2, 3, 4]. If the call instead had been append(list2, list1), the method would return an array containing [1, 2, 3, 4, 2, 4, 6].

import java.util.\*;  
public class ArraysAppended {  
 public static void main(String[] args) {  
 int[] numbers1 = {2, 4, 6};  
 int[] numbers2 = {1, 2, 3, 4};  
 int[] numbers3 = append(numbers1, numbers2);  
 System.out.println(Arrays.toString(numbers3));  
 }

/\* Your method goes here. \*/

}

Write your code for the complete method including method header below.

**10) for:each loops**

What is the output from the following code? \_\_\_\_\_\_\_\_\_\_\_\_\_

String[] letters = {"a", "b", "c"};

for(String s : letters) {

System.out.print(s);

}

**11) 2D arrays with nested for loops**

a) Consider the following code segment.

int[][] mat = new int[3][4];

for (int row = 0; row < mat.length; row++) {

for (int col = 0; col < mat[row].length; col++) {

if (row < col)

mat[row][col] = 5;

else if (row == col)

mat[row][col] = 4;

else

mat[row][col] = 3;

}

}

What are the contents of mat after the code segment has been executed? \_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (A) [4 5 5]  [3 4 5]  [3 3 4]  [3 3 3] | (B) [4 3 3]  [5 4 3]  [5 5 4]  [5 5 5] | (C) [4 3 3 3]  [5 4 3 3]  [5 5 4 3] | (D) [4 5 5 5]  [3 4 5 5]  [3 3 4 5] | (E) [5 5 5 5]  [4 4 4 4]  [3 3 3 3] |

b) Write a piece of code that declares a two-dimensional array of integers called *matrix* with 5 rows and 10 columns. Write a for loop that sets the second column of *matrix* values to integer numbers 0 through 4.

public class Array2D {

public static void main(String[] args) {

/\* Your code goes here. \*/

}

}

Write your code below.