CIS 1500 Test 2

Directions:

1. You may use your book, notes and jGrasp to complete the test.
2. Place all test materials into a zipped folder named <yourlastname>Test2 and upload to D2L by **Tuesday April 7, 2020 midnight**.
3. **Fill-in** the word document and use extra pages to complete any answer.
4. Include ***all*** java programs used to complete any question.

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Part 1: Loops

1. What is printed as this loop executes?

for (int x = 28; x >=7; x -=7)

System.out.printf(“%d\n”,x);

**ANSWER**

28

21

14

7

1. What are the contents of int ct and int j at the termination of the following loop?

ct = 20;

for (int x = 1; x < 3; x ++) ct j

{

320

for(int y = 8; y >4; y-=2)

ct \*= 2;

j = ct /4;

}

**ANSWER**

ct = 320

j = 80

3. What are in the variables **d, a,** and **c** at the end of the following while loop?

d = 15;

a = 10;

c = 3;

x = 4;

while (x > 0 ) d

{

d

switch (x)

{

case 1: a +=c; a

break;

case 2:

case 3: d \*= 2;

break;

case 4: c += d;

break; c

default: a++;

d--;

c--;

}

x--;

}

**ANSWER**

d = 60

a = 28

c = 18

1. What is printed out by this program segment:

for ( m = 1; m <= 5; m++ )

{

for (j = 1; j <= 3; j++)

{

for (k=1; k<= 4; k++)

System.out.print(‘\*’);

System.out.println();

}

System.out.println();

}

**ANSWER**

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1. Convert the while loop in the following code to a do-while loop:

Scanner keyboard = new Scanner(System.in);

int x = 1;

while (x >0)

{

System.out.print (“Please enter a whole number, enter 0 to stop: “);

x = keyboard.nextInt();

}

**ANSWER**

Scanner keyboard = new Scanner(System.in);

int x = 1;

do {

System.out.print ("Please enter a whole number, enter 0 to stop: ");

x = keyboard.nextInt();

} while ( x > 0 );

Part 2: File I/O

1. What does the variable amount contain after the following code has been executed?

int x; DATA File

File file = new File(“numbers.txt”);

Scanner inputFile = new Scanner(file);

16

int amount = 0; 3

for (int i = 1; i <=8; i++) 1

{ 12

x = inputFile.nextInt(); 9

if (( x % 4) == 0) 60

amount++; 5

else 56

amount += 0;

}

Amount

**ANSWER**

Amount = 4

1. Any method that uses file I/O needs what two keywords added to the method header?

**ANSWER**

throws IOException

1. What Java statement(s) need to be written to set up an output file named inventory.txt so the user can append data to it?

**ANSWER**

File inv = new File("inventory.txt");

Scanner inputFile = new Scanner(inv);

1. What are the import statements that are required to use file I/O if you are typing in the names of the files from the console?

**ANSWER**

import java.util.Scanner;

import java.io.\*;

Part 3 Methods

1. What does the following code output?

int result, num1,num2, num3; File:

num1 = inputFile.nextInt(); 50

num2 = inputFile.nextInt(); 26

num3 = inputFile.nextInt(); 51

result = maximum(num1, num2, num3);

System.out.println(“Maximum is “+ result);

public static int maximum(int x, int y, int z)

{

int maxValue = x;

if (y > maxValue)

maxValue = y;

if(z > maxValue)

maxValue = z;

return maxValue;

}

**ANSWER**

51

1. a.Write the correct method header and subsequent code for a method named DoubleIt that receives an integer (num1) and returns its square.

**ANSWER**

public static double DoubleIt(int x)

{

double num\_s = x;

double result = Math.sqrt(num\_s);

return result;

}

b. Write the change to the method header from part 2(a) if the same named method DoubleIt is to be used with a double value being sent.

**ANSWER**

public static double DoubleIt(double x)

{

double result = Math.sqrt(x);

return result;

}

Part 4: Classes

1. Declare the instance fields and write the constructor method for a class named Cube that accepts the length from the application program. The datatype is int.

**ANSWER**

public class Cube

{

private int length;

private int width;

private int height;

public void setLength(int len)

{

length = len;

}

public void setWidth(int w)

{

width = w;

}

public void setHeight(int h)

{

height = h;

}

}

1. The application program needs to create a cube object that sends values for length, width, and height to the constructor method for the class Cube. Write the statement that will instantiate a Cube object named red with the int value;

**ANSWER**

Cube red = new Cube();

1. The application program wants to access the volume method found in the Cube class and place the information into an int variable named totVolume.

**ANSWER**

public int totVolume()

{

return length \* width \* height;

}

Extra Credit:

1. What is stored in each of the variables when the loops terminate?

int q, k, m, x, t;

x = 6;

for (q = 0, k = 3, m = 7; k < m; k \*= 2, m +=2)

{

t = 5;

System.out.println( “ q = “ + q + “k = “ + k + “ m = “ + m

+ “x = “ + x + “t = “ + t );

while (x ++ % --t > 0)

q --;

}

**ANSWER**

t = 1

q =-5

k = 12

m = 11

x = 13