Name: Key/Notes UTA ID:

Instructions:

1. The test is worth 100 points. The point value of each question is given with the question. There are also extra credit questions at the end.
2. The test is open book and open notes for all printed and hand-written material. You may NOT bring an electronic book or any electronic device to use during the test (no computer, no smart phone, etc.) You may use as much printed or written material as desired including copies of code examples.
3. You will write your answers on the test pages. If additional space is needed, you may use the back of the pages. Please make a note on the test page whenever your answer continues onto another page and indicate where the answer is.
4. Please write legibly. Your writing should readable if the test is sitting on a desk in front of me. I am not looking for perfect handwriting but it does need to be legible. I will deduct points if your answers are much more difficult to read than those of the general student.
5. For multiple choice questions, circle the letter of your answer choice. Circle only one choice for your answer.
6. If you have a question during the test, please raise your hand. The TA and I will be available to come hear your question. Sometimes we may not be able to answer your question because it gives you too much information but you should always ask.
7. You have 1 hour and 20 minutes to complete the test.

1. Use the java file T2Q1F16 to answer the following questions. The file contains code to calculate the cost of dinner for multiple people at a restaurant. There are a max of 8 diners. Each diner could have a drink, an appetizer, a main dish, and a dessert. Data is read in from a file : first line is number of diners, taxrate, tip percent and every line after first is diner\_number, cost, item\_category, item name. The item categories are single words: "drink", "appetizer", "entree", "dessert"

1.a) Assuming that method calcPct works correctly, which is the correct output from the lines between the two comment lines marked with “// ---“ (lines 103-109) if pretaxBill is 50.00, taxRate is 5 and tipPercent is 20 ? [e on TestC; e on TestB]

 (7 pts)

A. The cost of the dinner before tax is $ 50.00

 The tax rate is .05% and the tip percent is .20%

 The cost of the dinner with tax and tip is $ 62.50

B. The cost of the dinner before tax is $ 50.00

 The tax rate is 5.00% and the tip percent is 20.00%

 The cost of the dinner with tax and tip is $ 62.50

C. The cost of the dinner before tax is $ 50.00

The tax rate is 5.0% and the tip percent is 20.0%

 The cost of the dinner with tax and tip is $ 62.50

D. The cost of the dinner before tax is $ 50.00

 The tax rate is .05% and the tip percent is .2%

 The cost of the dinner with tax and tip is $ 50.25

1.b) What is the maximum number of pieces of data that the program could read from the input file given the variables that are defined in the program and the format of the file? [f TestC; f TestB] (7 pts)

A. 128

B. 47

C. 32

D. 131

1.c) What is printed by the program if no file is found for the Scanner? Write all the output lines.

 [a on TestC; g on TestB] (10 pts)

This system calculates the cost of a group meal

No input file found

Total Bill : $ 0.00

Average amount per person for a party of 1 is $ 0.00

1.d) Why can’t we write a loop to repeat a statement eight times to replace

 the 8 lines after “// ^^^” (line 119)? [b on TestC; h on TestB] (7 pts)

A. Each line is doing a completely different thing so there is nothing to repeat

B. Each line is calling a different method to cause information to print

C. Each line is doing the same thing but using different variables

D. Each line is doing the same thing using an array of variables

1.e) Complete the method *calcPct* at “// +++” (line 139).

Write the body of *calcPct* here: [c on TestC; i on TestB] (10 pts)

return percentageRate\*.01\*bill;

1.f) Rewrite the following code fragment using a call to calcPct: (8 pts)

[d on TestC; j on TestB]

Current code: diner1 \* (1+taxRate\*.01+tipPercent/100)

Rewritten code: calcPct(taxRate+tipPercent+100,diner1);

1.g) Write all the data that is in the input file if the output produced by the program is:

[j on TestC; a on TestB]

This system calculates the cost of a group meal

Diner 1 enjoyed Big Mac as their entree

Diner 1 enjoyed Coke as their drink

Diner 2 enjoyed Big Mac as their entree

Diner 2 enjoyed Sprite as their drink

The cost of the dinner before tax is $ 10.00

The tax rate is 10.0% and the tip percent is 10.0%

The cost of the dinner with tax and tip is $ 12.00

2 people had drinks at a cost of $ 2.00

0 people had appetizers at a cost of $ 0.00

2 people had entrees at a cost of $ 8.00

0 people had desserts at a cost of $ 0.00

Total Bill : $ 12.00

Average amount per person for a party of 2 is $ 6.00

Diner 1 had a meal with the cost of $ 6.00

Diner 2 had a meal with the cost of $ 6.00

The input file must have what data? Write the file contents here: (19 pts)

2 10 10

1 4.00 entree Big Mac

1 1.00 drink Coke

2 4.00 entree Big Mac

2 1.00 drink Sprite

1.h) At “// \*\*\*” (line 70) write the lines that would be needed to save the costs for the four dinner items for Diner 1 from the file into the variables *drink1*, *dessert1*, *entree1*, and *appetizer1* whenever they come up in the input file. (18 pts)

[g on TestC; b on TestB] Has to check for diner 1 and the right category

 if ((diner == 1) && (itemCat.equals("appetizer")))

 {

 appetizer1 = cost;

 }

 else if ((diner == 1) && (itemCat.equals("drink")))

 {

 drink1 = cost;

 }

 else if ((diner == 1) && (itemCat.equals("entree")))

 {

 entree1 = cost;

 }

 else if ((diner == 1) && (itemCat.equals("dessert")))

 {

 dessert1 = cost;

 }

1.i) What is *billAvailable*? [h on TestC; c on TestB] (7 pts)

A. A double value containing the cost of the total bill

B. A boolean value indicating, when true, that the total cost has been calculated

C. A boolean value indicating, when false, that the bill is being picked up by someone else.

D. A boolean value indicating, when true, that a file exists to read data from

1.j) What is actions are happening in the three lines after “//===” (line 50)? (7 pts)

[i on TestC; d on TestB]

A. A group of variables are being assigned values of 0 by receiving the 0 value of a previous variable.

B. A group of variables are being individually assigned the value of 0 in separate statements.

C. One variable is being assigned the value of 0.

D. A group of variables is being given the input values of other variables.

Extra Credit

XC1) Assuming you had saved *drink1*, *dessert1*, *entree1*, and *appetizer1* for Diner 1. Write an output statement (starting with System.out…) that prints a complete sentence telling what Diner 1 had for their meal. {4 points}

I have this messed up. Those variables are doubles so I’ll accept treating these as doubles or as strings.

System.out.println(“Diner 1 had a drink costing $“+drink1+”, an appetizer for $”+appetizer1+

 “, an entrée of $”+appetizer1+”, and dessert costing $”+dessert1);

XC2) Which of the following would cause the program to crash? {2 points}

A. No input file

B. A negative number for the cost of a meal item

C. A dessert named “”

D. The line *3 1.98 drink Coke* as the first line of the data file

XC3) Which of the following would NOT stop the program from compiling and NOT cause the program to crash? {2 points}

A. A string in the file where a double is expected

B. Passing a boolean variable into the method *calcPct*

C. Removing the line *billAvailable = false;*

D. A negative number for the number of a diner in the file

XC4) Write a Java rhyme. Be amusing. ☺ {Any answer will receive 2 pts}