Name: 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 worth 10 points.
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. All questions that start with the same number are related so look back at the earlier parts of the questions as needed.
5. 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. Also it needs to be LARGE enough for me to read. I will deduct points if your answers are much more difficult to read than those of the general student whether that is from poor handwriting or microscopic handwriting.
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. This includes asking about words you don’t understand, etc.
7. I recommend that you read quickly through all the questions before starting to spend a lot of time on any one question. You may decide to work on a question that is worth more points first.
8. You have 1 hour and 20 minutes to complete the test.

1) In Lab 9, what types of grades are in the file of student data? Name the types of grades.

{6 points}

2) Given a two letter abbreviation for a US state or Canadian province or territory from Lab 8, how would you verify that the abbreviation is a real state or province abbreviation? Describe in words how you would do this verification. Keep your answer to 4 sentences or less. {12 points}

3) Convert the following values from the indicated base to the base listed for the answer

{9 points}

94510 = 2

1001112 = 16

10011110 = 16

4) In Lab 9, what kind of information will be produced for all the students when all the parts of the lab are complete? Describe this in less than a paragraph. {7 points}

5) From Lab 7, write the equation to use to convert a Celsius temperature to a Fahrenheit temperature. {7 points}

6) Describe in words the process you use to convert from binary to decimal. Be succinct.

{8 points}

7) Indicate which of the following is used with arrays (A) or ArrayLists (L): {12 points}

.length .size()

angle brackets []

fixed size .add(3)

8) Declare and allocate memory for an array of 20 primitive integer type values then use a normal *for* loop and a random number generator to assign values between 0 and 10000 to the 20 elements of the array.

{8 points}

9) From Lab 8 there was data for a state, province, or territory two letter abbreviation. For the lab you only had to verify two things about the abbreviation. What were the two things that you needed to verify? {6 points}

10) If an array has only a few values that are scattered throughout the array rather than all together within the array, then this array is called a “sparse” array. The input grade data on each line generally will create sparse arrays when it is read in. In Lab 9, question 4, the sparse array of quiz data is manipulated in a certain way such that the array would no longer be considered a sparse array. What is done to the data and what algorithm is used if any? {6 points}

11) Declare and allocate memory for an ArrayList of 20 Integer type values then use an enhanced *for* loop and a random number generator to assign only EVEN values between 0 and 10000 to the 20 elements of the array.

{10 points}

12) Given a variable called *age* that contains an age in months, write ONE line of Java code that will print out a statement with the age value in one of the two ways below:

Ex: If the following declaration is given, *int age = 302*, the Java statement should produce:

*Your age is 302 months and you are over 20 years old.*

However, if the following is given, *int age = 198;,* the output below is produced.

*Your age is 198 months and you are under or equal to 20 years old.*

Two more examples would be:

*Your age is 243 months and you are under or equal to 20 years old.*

*Your age is 252 months and you are over 20 years old.*

Write ONE Java statement that will take any value for *age* representing an age in months and will print one of the two possible forms of the output statements above based on the value of the *age* variable. You may NOT use an *if* or a *switch* in your answer. [International students might note that this question assumes that a baby turns 1 year old (not 2 years old) at the end of 12 months.]

{9 points}

Extra Credit

XC1) Given the values below in octal, convert them to the indicated base. {6 points}

748 =  16

158 = 2

528 = 10

XC2) If a File variable *fIn* has been declared and a Scanner *scIn* has been created, then write the lines of Java code that would be required to connect *scIn* to the *fIn* variable for input. {2 points}

XC3) What is the most fun thing about the 1310 class so far? {Any answer will receive 2 points}