**Lecture #15 Worksheet**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Classification/section: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Fill in blanks to answer questions below. Then email this sheet to your TA.**

1. **What are the six basic actions required in writing a loop?**
2. **What 3 things are being done by the loop program (slide 3)?**
3. **Are data transmissions done with random numbers of characters?**
4. **As the program starts, where in the buffer does it begin?**
5. **What does the program do with a transmission control character?**
6. **As the program encounters printable characters, what does it do?**
7. **What is the purpose of register $t0?**
8. **What is the purpose of register $t1?**
9. **What are registers $t2 and $t3 used for?**

**Study the loop and then answer the following questions:**

1. **In the loop, if the five branches are not taken, what is done with the character?**
2. **What happens at “next?”**
3. **When the 96 characters have been analyzed, what happens next?**
4. **Explain what “nested” loops are.**
5. **In the nested loop problem, what is the program doing?**
6. **As the nested loop completes its problem, what does the inner loop accomplish?**
7. **What does the outer loop do?**
8. **What is meant by the program “mapping” a determinant.**
9. **How is the memory address of a determinant element calculated?**
10. **Copy the program into your computer and run it, then verify below that the program has run.**

**Program ran. \_\_\_\_\_\_\_\_\_\_**

1. **Carefully read the notes on Program 4, then write and run it. If you are having too much trouble, copy the answer given and run it, but try first on your own.**

**Program completed. \_\_\_\_\_\_\_\_\_\_**

1. **Optional: From Slide 30, write the program analyzing the hex word shown, counting the 8’s. No answer provided, so you are on your own!**