1. Write a brief paragraph about what you have learned from your review of textbook supplement section 2.15. Located on Blackboard under Course Documents / Additional Chapter Sections Not in Textbook. (3 – 5 sentences) (10 pts)

Answer: The first thing I learned and found interesting is that Java uses such a small size for the representing variables, fields and arrays for the comparable class. Next is the large number of MIPS lines that are required to transfer Java into Machine Code. Last is how the Java VM works and reads in the Java code.

2. Write a brief paragraph about what you have learned from your review of textbook supplement section 2.21. Located on Blackboard under Course Documents / Additional Chapter Sections Not in Textbook. (3 – 5 sentences) (10 pts)

Answer: I had never given thought to whole Operating System being written in Assembly before reading this section. On top of that, programmers having only one register to code with was surprising aswell. Also never knew that UNIX was originally written in C.

3. Read textbook page 107: ASCII versus Binary Numbers. Write a brief paragraph about what you have learned from your review of this section of the textbook. What would happen if we represented numbers as strings of ASCII digits instead of as integers? How much does storage increase if the number 1 billion is represented in ASCII versus a 32-bit integer? (10 pts)

Answer: The storage space required to use ASCII would greatly increase. Each digit in a number requires 8-bit’s, so any number with greater than 3 digits would start to use more space. With the number 1 billion, 13 digits would require 3.25 times more space in ASCII.

4. Convert the following number from base 10 to base 2? (10 pts)

123

Answer: 01111011

5. Convert the following number from base 2 to base 10? (10 pts)

10111011

Answer: 187

6. Convert the following number from base 16 to base 10? (10 pts)

E72F BAC9

Answer:

7. Convert the following number from base 16 to base 2? (10 pts)

E72F BAC9

Answer:

8. Convert the following base 2 number to Two’s Complement? AND explain what Two’s Complement is and how to get it. (10 pts)

10111011

Answer: 01000101, you get to this by flipping each bit and adding 1. This is done to represent negative numbers in a signed bit integer.

9. Research 1 new technology advancement that has been released in the last 6 months (or coming out soon). Write a brief paragraph about the purpose of this technology. How this technology may improve upon someone’s life? Do you think that people will purchase this technology? (20 pts) 2 paragraph minimum with at least 1 external resource.

The new technology I chose is the new GDDR6 SDRAM being made by Samsung and Micron. This new SDRAM will have data rates upto 16Gb/s, compared to the 8Gb/s rate of GDDR5. This will greatly increase performance of any compute cards using the new ram. As such, it will help with further developments in deep-learning and graphical potential.

People will most likely purchase this technology, though not by itself. This type ram is usually used on GPU’s and other heavy computing cards. With the ever growing need for more powerful hardware, people will eventually upgrade to components that use this ram. May their need be for businesses, deep-learning A.I. development, PC gamers, or many other accounts that use GPU power. With the many uses for this type of ram, even more things will come about from the tech this ram will be installed on.

https://www.pcgamer.com/samsung-is-cranking-out-gddr6-memory-for-next-generation-graphics-cards/