

CS520—Spring 2013—Homework 1
Wednesday January 30

Question 1

Show how 257 (base 10) would be represented in memory as a 16-bit 2's complement integer. Show your answer in hexadecimal and show all the hex digits, even if they are zero. Clearly label the order in which the bytes would lie in memory. Assume the machine is Little Endian.

Question 2

Convert the UTF-16 character (shown in hexadecimal) 0xABCD to UTF-8. Show your answer as a sequence of bytes. Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 3

Convert the UTF-32 character (shown in hexadecimal) 0x1045D to UTF-8. Show your answer as a sequence of bytes. Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 4

Convert the UTF-32 character (shown in hexadecimal) 0x1045D to UTF-16. Show your answer as a sequence of bytes in Big Endian format. Show your answer in hexadecimal and show all the hex digits, even if they are zero.

Question 5

Is the following sequence of hexadecimal bytes a valid UTF-8 encoding of an Unicode character? Why or why not?

E0 81 9F