Quiz 3

Date: September 19, 2019

Name:

1. (25 points) Binary addition

    (a) (20 points) Compute the following longhand **binary** addition. Also convert each addend and the result to hex in the box to the right. Show your carries on the binary side.
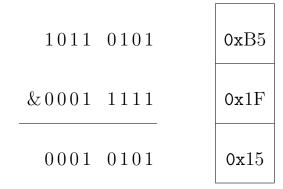
$$
\begin{array}{r}
1011\ \ 0111 \\
+\,0101\ \ 0001 \\
\hline
1\,0000\ \ 1000
\end{array}
$$

0xB7
0x51
0x108

Solution: 1 0000 1000

    (b) (5 points) Does the sum fit in an 8-bit register?

Solution: No, the sum is 9 bits long, so it can't fit in an 8-bit register.

2. (15 points) Compute the following bitwise logical AND. Also convert each input and the result to hex in the box to the right.

$$
\begin{array}{r}
1011\ \ 0101 \\
\&\,0001\ \ 1111 \\
\hline
0001\ \ 0101
\end{array}
$$

0xB5
0x1F
0x15

Solution: 0001 0101