#1. Show the binary representation of $-34_{10}$ in the following representation schemes (assume 16-bit words):

a) sign magnitude

b) one’s-complement

c) two’s complement

#2. Convert $414_{10}$ into (assume 16-bit words):

a) binary

b) octal

c) hexadecimal

#3. Fill in the Condition Code bits for the following addition instructions (8-bit two’s-complement numbers):

\[
\begin{array}{c}
10110110 \\
+ 11001010 \\
\hline
\end{array}
\quad \begin{array}{c}
01101010 \\
+ 01011001 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccccc}
N & Z & V & C \\
\hline \\
| & | & | & | & | \\
\hline \\
(over) \\
\end{array}
\]
#4. Powers of 2

\[ 64K = 2^{16} \]

\[ 2^{37} = \text{______} \] (in terms of K, M, G, etc.)

#5. List the five C/C++ Runtime Environment areas in the order as discussed in class that a typical Unix system will lay them out, and in particular the SPARC architecture lays them out:

A - Heap
B - Data
C - BSS
D - Stack
E - Text

_____ low memory

_____ 

_____ 

_____ 

_____ high memory