1. (5 points) Add the six bit unsigned binary numbers 011001 and 101110. What is the six bit sum?

Does this six bit addition result in an arithmetic error?

Suppose the binary numbers represent signed values. Does the addition result in an arithmetic error in this case?
2. (5 points) If our basic processor begins execution with the first instruction shown below, what value will be in the program counter after three instructions are executed? (Hint: sign-extension.) The list of instructions is given below.

<table>
<thead>
<tr>
<th>addr</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0060</td>
<td>1fff</td>
</tr>
<tr>
<td>0061</td>
<td>a062</td>
</tr>
<tr>
<td>0062</td>
<td>9061</td>
</tr>
<tr>
<td>0063</td>
<td>a060</td>
</tr>
<tr>
<td>0064</td>
<td>8060</td>
</tr>
</tbody>
</table>

What value will be in the accumulator after four instructions are executed?

0000  halt execution
0001  negate the value in the ACC
1xxx  change the value of the ACC to xxx
2xxx  load the contents of memory location xxx into the ACC
3xxx  load the ACC from the memory location whose address is stored in memory location xxx
4xxx  store the value in the ACC in memory location xxx
5xxx  store the value in the ACC in the memory location whose address is stored in memory location xxx
6xxx  change the value of the PC to xxx
7xxx  change the value of the PC to xxx if ACC = 0
8xxx  change the value of the PC to xxx if ACC > 0
9xxx  change the value of the PC to xxx if ACC < 0
aXXX  add the value in memory location xxx to the ACC