Lab #21 Name: _____ Per: _____

# Title: USING THE 7483 IC ADDER

**Materials:**
[1] 7483

**Procedure**:
1. Wire the 4-bit binary adder as shown in Figure 21-a. Use eight switches for ($A_3A_2A_1A_0$ and $B_3B_2B_1B_0$).
2. Try adding 1111 and 1111. The answer should be 11110 (decimal 15 + 15 = 30). Write down 5 more addition problems and make sure they work. Record your results below **BEFORE** you get the signature. **Get Instructor's Signature.**
3. Wire the 4-bit parallel binary subtractor as shown in Figure 21-b. Use eight switches for ($A_3A_2A_1A_0$ and $B_3B_2B_1B_0$).
4. Try subtracting 0110 from 1111. The answer should be 1001 (decimal 15 - 6 = 9). Write down 5 more addition problems and make sure they work. Record your results below **BEFORE** you get the signature. **Get Instructor's Signature.**

**Questions** (answer on a separate piece of paper – **"Draw" means you must use a template**):

1. Describe two things you must do to a 4-bit adder to convert it to a binary subtractor.
2. What two inputs of the 7483 IC are the 1s digits?
3. What is the purpose of the $C_o$ input on the 7483 IC?
4. What is the purpose of the $C_4$ output on the 7483 IC?
5. Inside the 7483 IC we would find circuitry equal to _____ (one half adder and three full adders, four full adders).

| 5 Addition Problems (show work) | 5 Subtraction Problems (show work) |
|---|---|
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
| 4. | 4. |
| 5. | 5. |

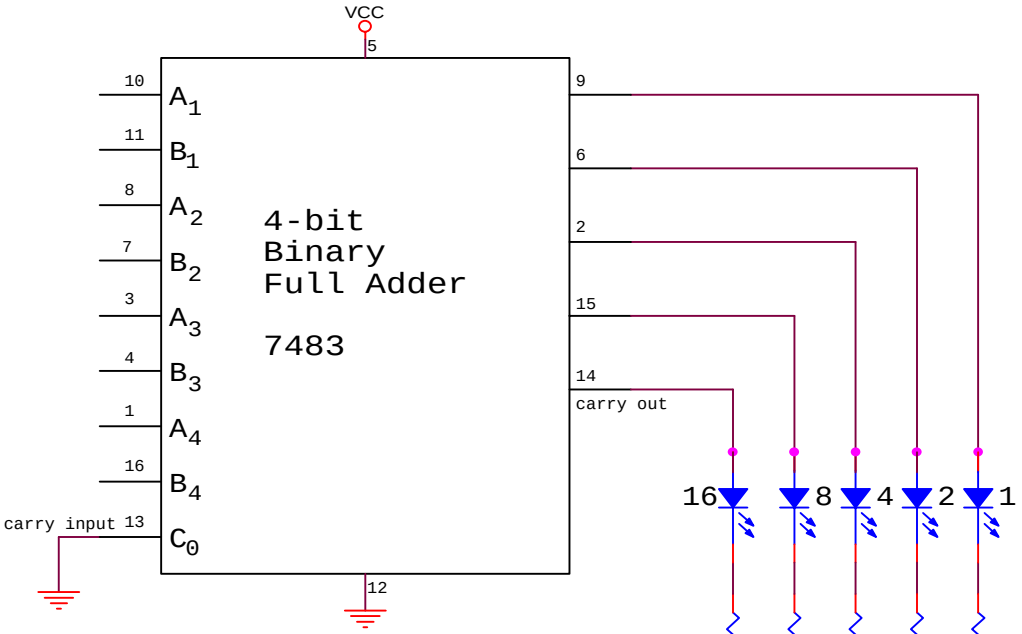


Figure 21-a
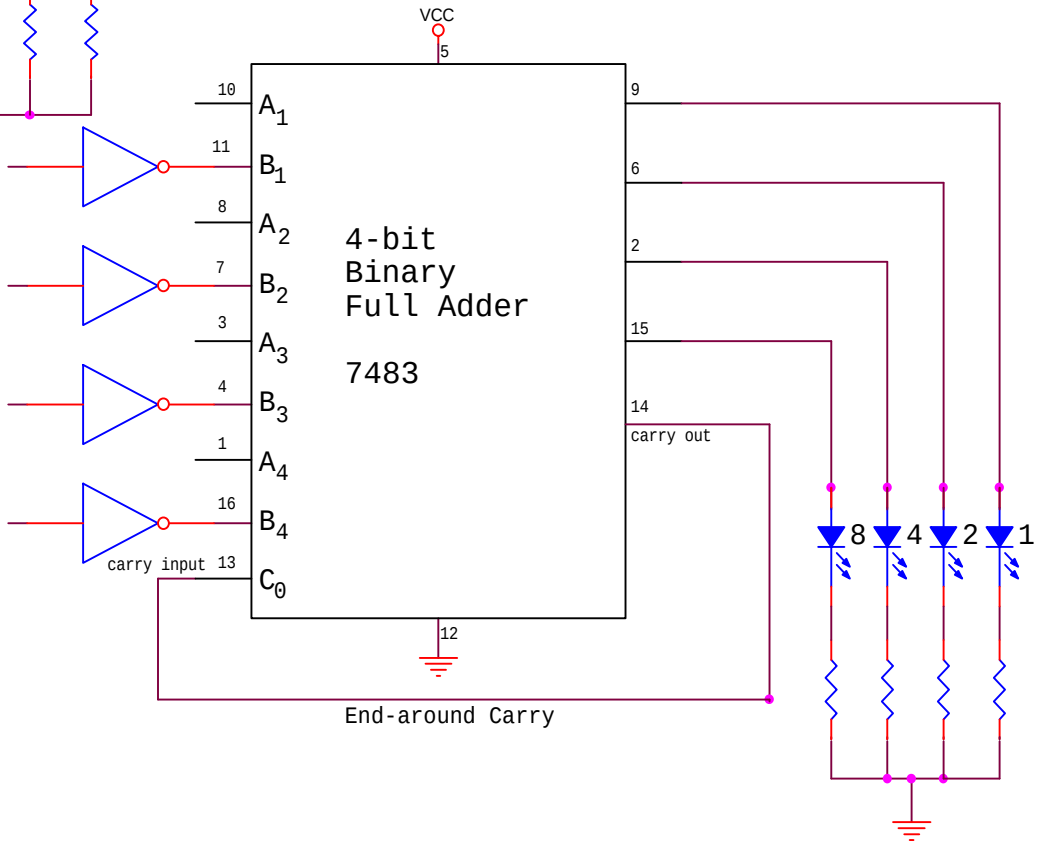
Figure 21-b