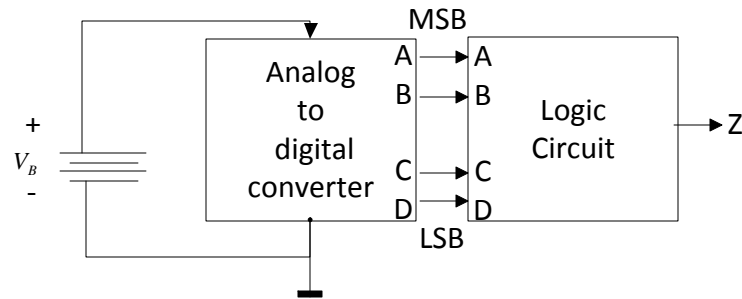


Design a logic circuit that is to produce a HIGH output as long as the battery voltage is greater than 6 volt for the following figure. The ADC is monitoring the dc voltage of a 12V storage battery on an orbiting spaceship.



### Solution:

#### 1. Truth Table :

Inputs				Output
A	B	C	D	Z
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

#### 2. MAP :

AB \ CD				
	00	01	11	10
00				
01			1	
11	1	1	1	1
10	1	1	1	1

Fig: Map for Z

$$Z = A + BCD$$

#### 3. Circuit Diagram :

