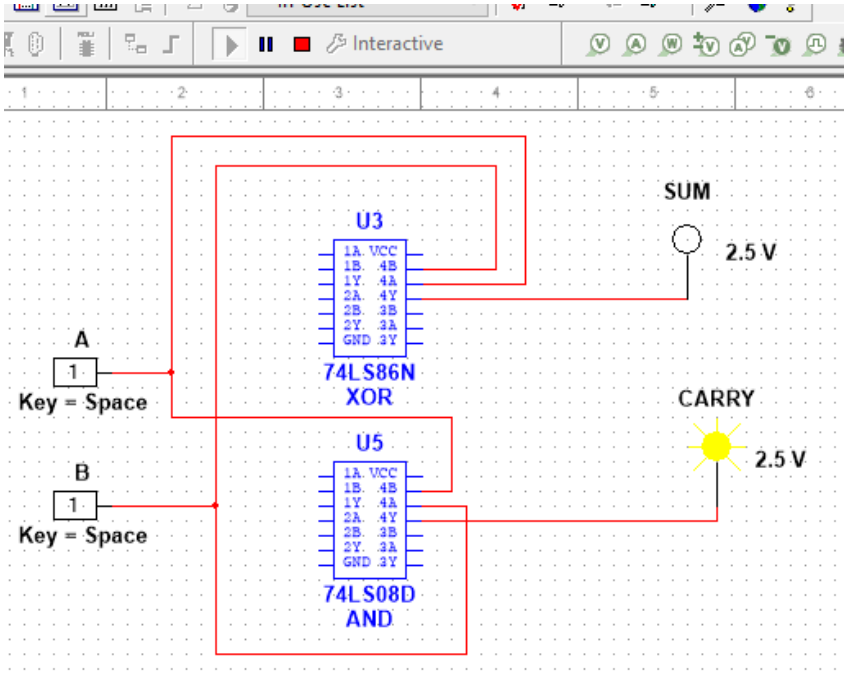
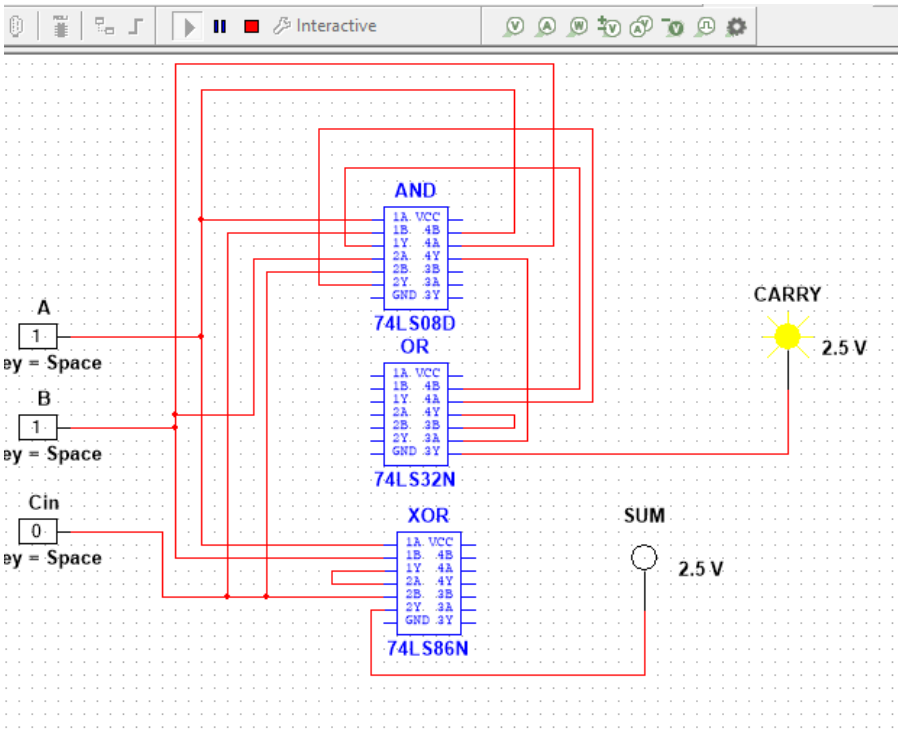
DACD LAB EXPERIMENT 5

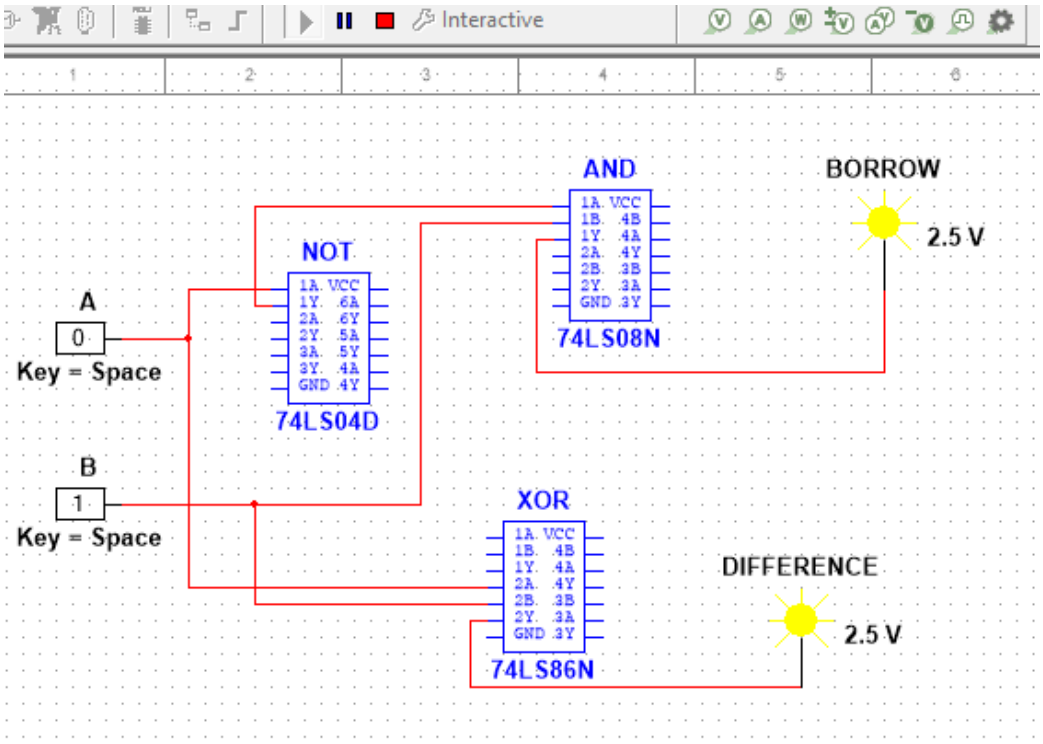
1)HALF ADDER



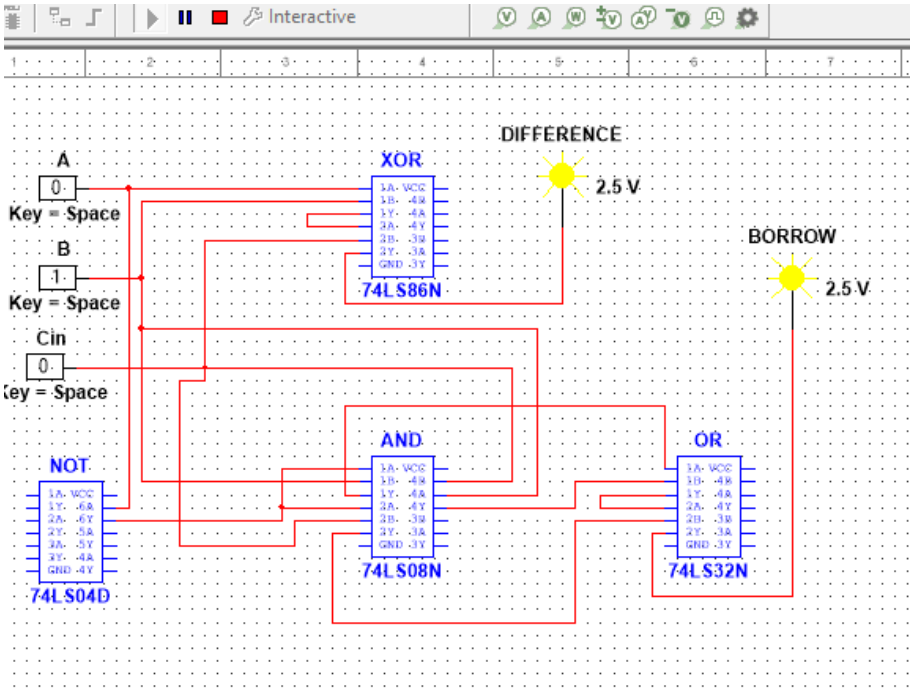
2)FULL ADDER



3)HALF SUBTRACTOR

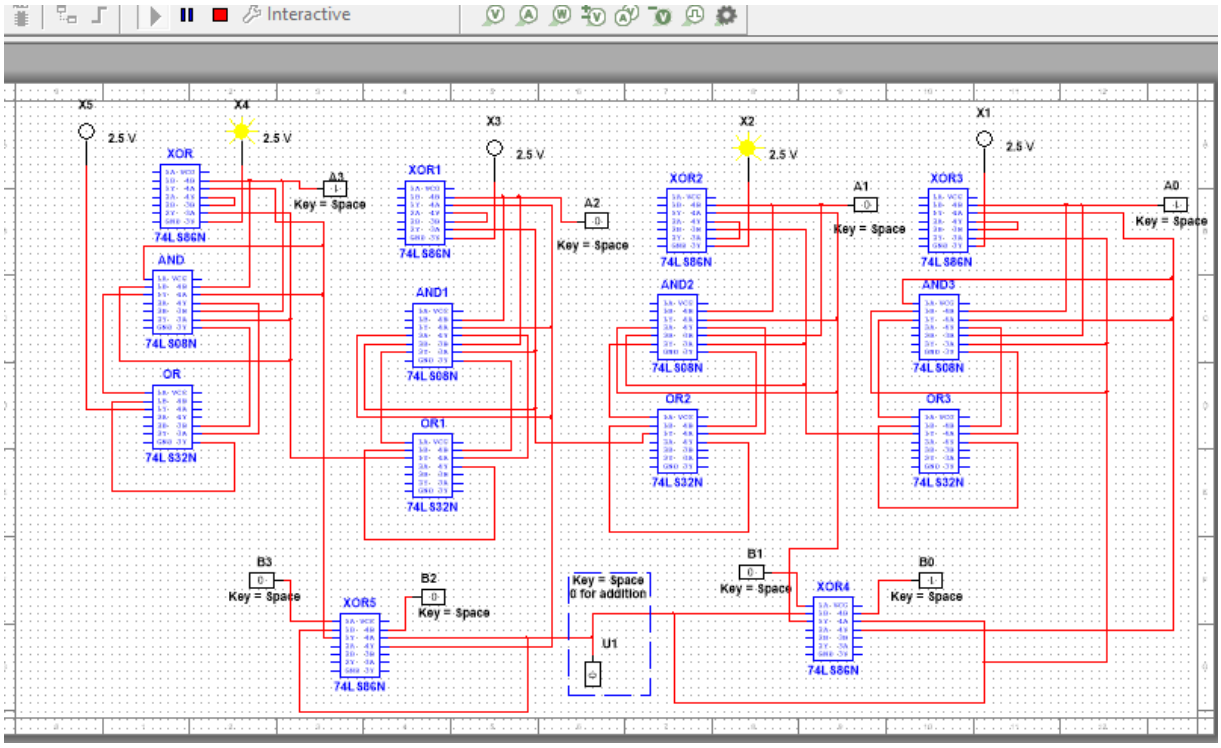


4)FULL SUBTRACTOR

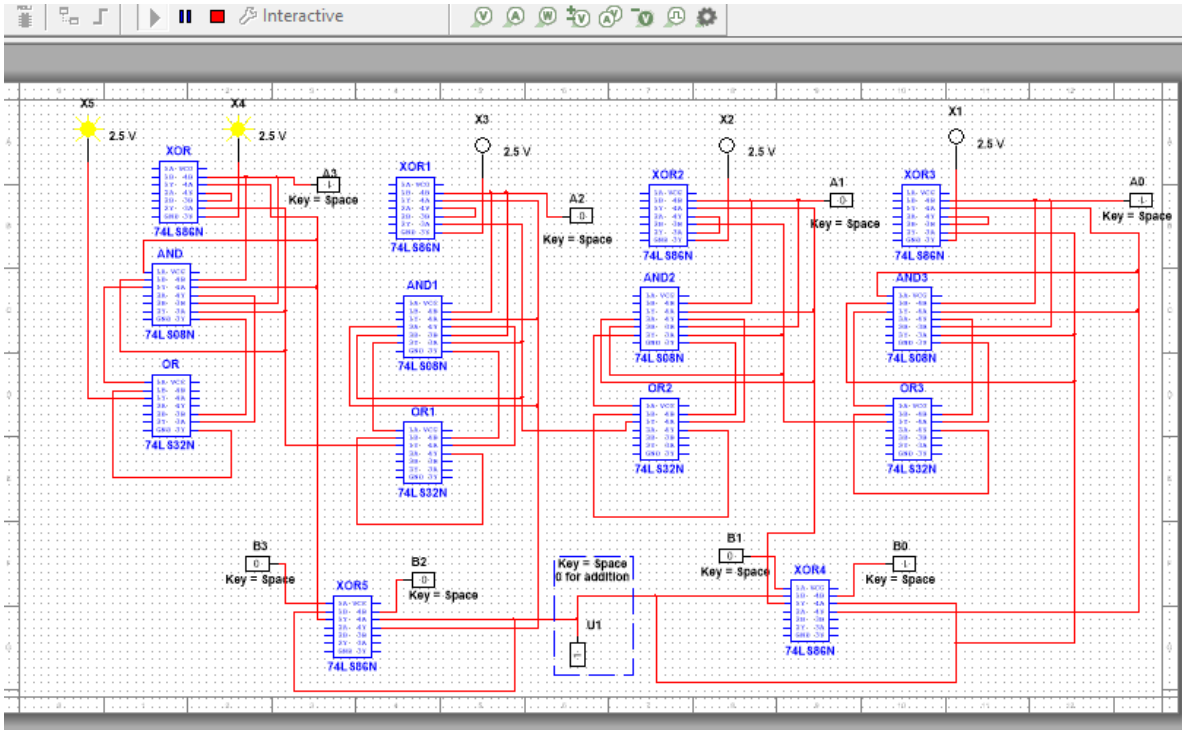


5)4 BIT ADDER CUM SUBTRACTOR

During addition , everything is as expected X5 is the end carry .



During subtraction, When end carry=1 => the answer is positive and carry bit can be ignored and the 4 bits constitute the answer When end carry=0=> the answer should be converted into 2s complement form and then added with a negative sign to the left. This is because ,here,we are using Full Adder. So we need to do subtraction also using adder only. Hence we convert the binary number to be subtracted (B) using Xor IC And thus we again convert it back to normal form. When the answer is positive, no need to convert because ,for positive numbers 2s complement is the same as the number itself.


Interactive
X5
2.5 V
X4
2.5 V
X3
2.5 V
X2
2.5 V
X1
2.5 V
XOR
74L S86N
AND
74L S08N
OR
74L S32N
A3
Key = Space
XOR1
74L S86N
AND1
74L S08N
OR1
74L S32N
A2
Key = Space
XOR2
74L S86N
AND2
74L S08N
OR2
74L S32N
A1
Key = Space
XOR3
74L S86N
AND3
74L S08N
OR3
74L S32N
A0
Key = Space
B3
Key = Space
XOR5
74L S86N
B2
Key = Space
Key = Space
0 for addition
U1
B1
Key = Space
XOR4
74L S86N
B0
Key = Space