**Pre-Lab Worksheet #2 NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ LAB Section: B0\_\_**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. The SOP of : F(A,B,C,D) = Σm(1,2,3,5,6,9) + Σd(7,10,11,12,13)  |  |  |  |  |  | | --- | --- | --- | --- | --- | | AB\CD | 00 | 01 | 11 | 10 | | 00 |  |  |  |  | | 01 |  |  |  |  | | 11 |  |  |  |  | | 10 |  |  |  |  | | |
| 1. The circuit that represents the SOP of F(A,B,C,D) using OR gates, AND gates and inverters (on main inputs). | |
| 1. The POS of : F(A,B,C,D) = Σm(1,2,3,5,6,9) + Σd(7,10,11,12,13)  |  |  |  |  |  | | --- | --- | --- | --- | --- | | AB\CD | 00 | 01 | 11 | 10 | | 00 |  |  |  |  | | 01 |  |  |  |  | | 11 |  |  |  |  | | 10 |  |  |  |  | | |
| 1. Draw the POS form of the circuit using OR and AND gates (plus inverters on the main inputs.) | 1. Re-draw the circuit using only 2-input NOR gates (plus inverters on the main inputs.) Include pin numbers. |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | A\BC | 00 | 01 | 11 | 10 | | 0 |  |  |  |  | | 1 |  |  |  |  | |  |  | X |  |  |  1. Karnaugh maps and simplified functions X, Y, and Z  |  |  |  |  |  | | --- | --- | --- | --- | --- | | A\BC | 00 | 01 | 11 | 10 | | 0 |  |  |  |  | | 1 |  |  |  |  | |  |  | Y |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | A\BC | 00 | 01 | 11 | 10 | | 0 |  |  |  |  | | 1 |  |  |  |  | |  |  | Z |  |  | | |
| 1. Draw circuits for , , and using only 2-input NAND gates and Inverters on the inputs. Include chip pin numbers on all inputs and outputs. | |

Finally, write a list of things that you learned in doing this pre-lab: