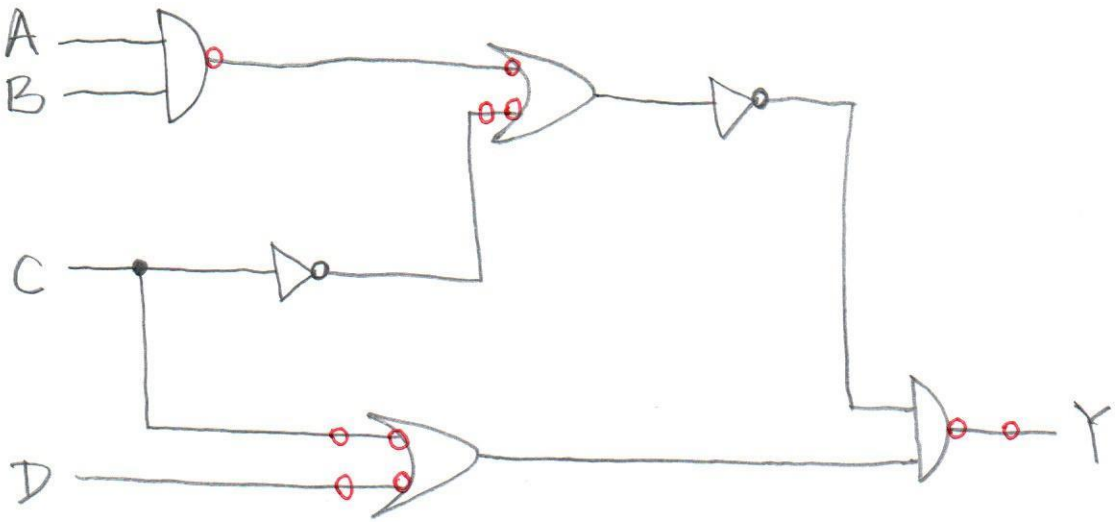
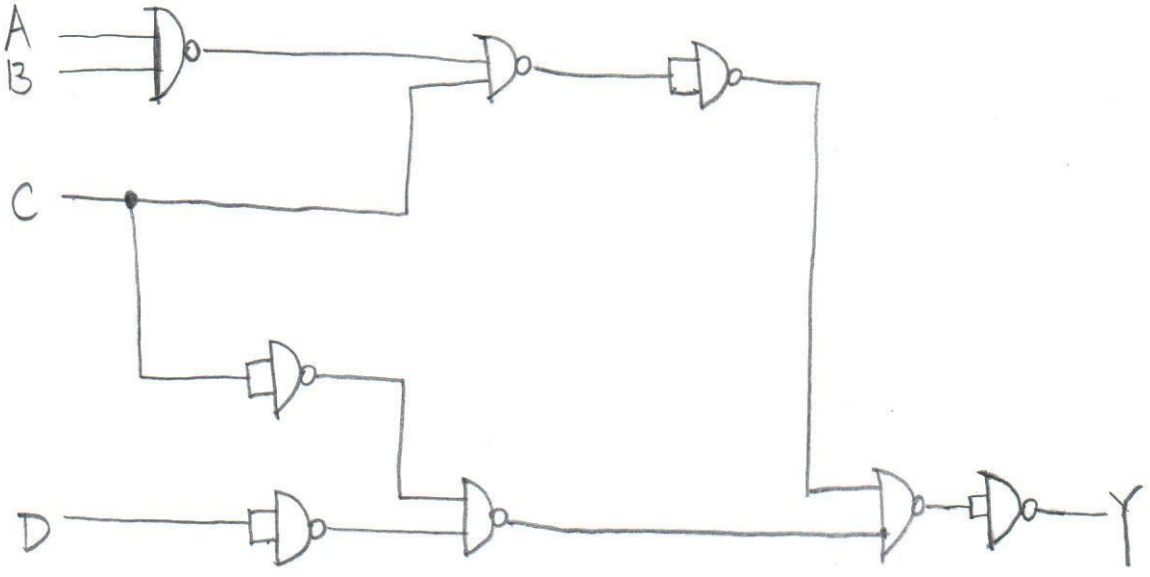
EE115B, Fall 2024, Homework 3

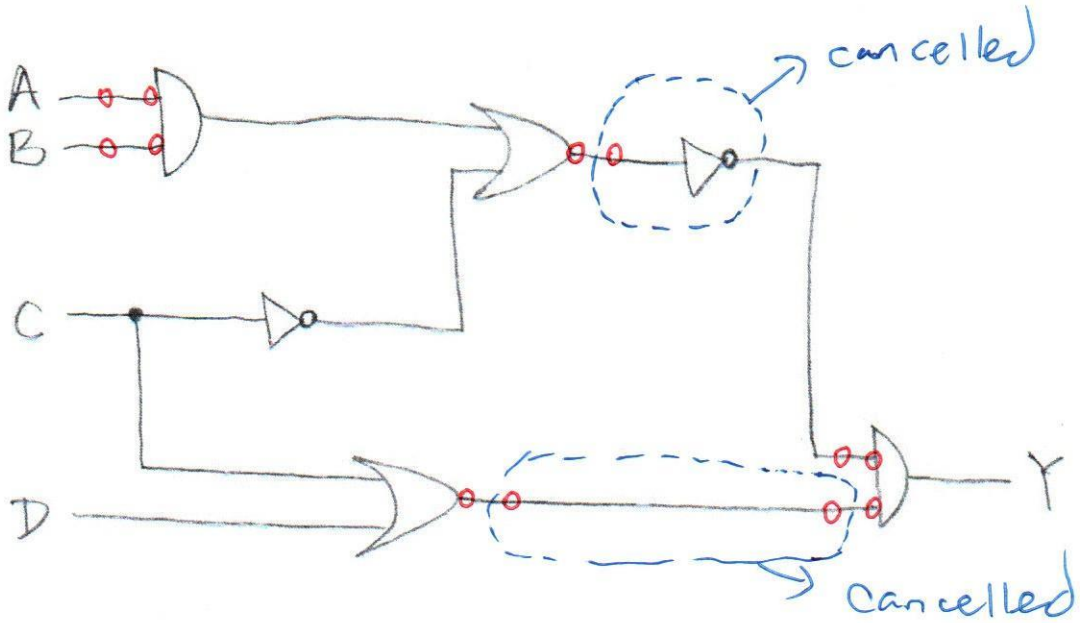
Solution

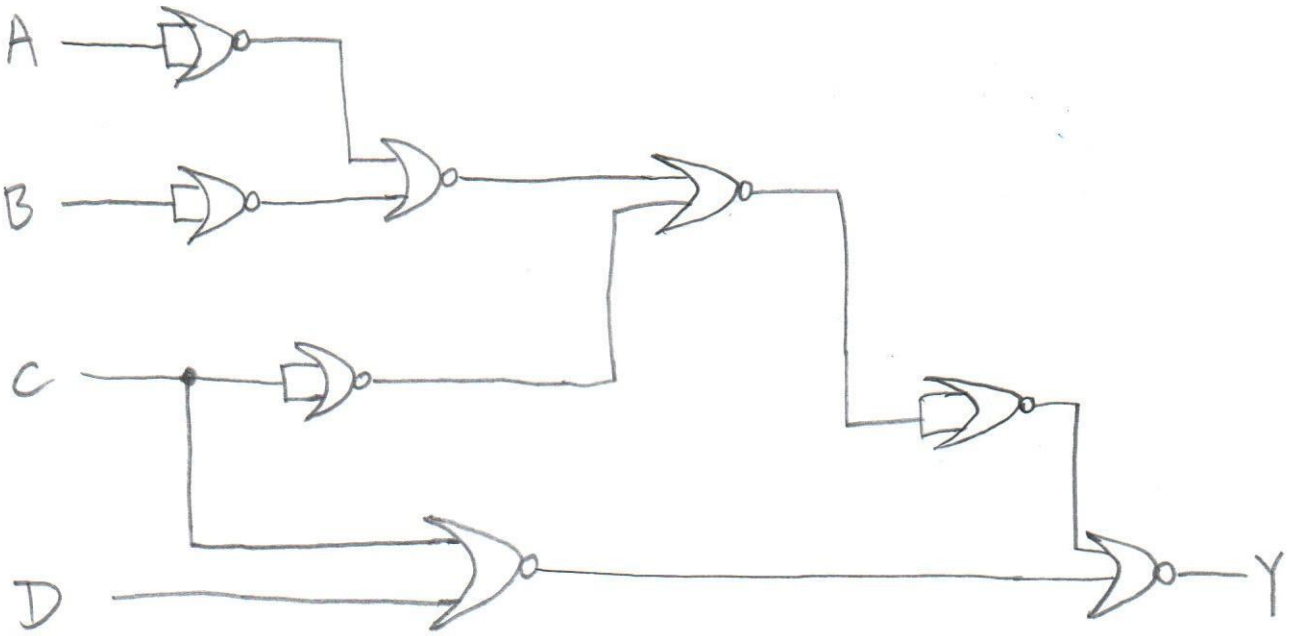
1. (1) NAND-only





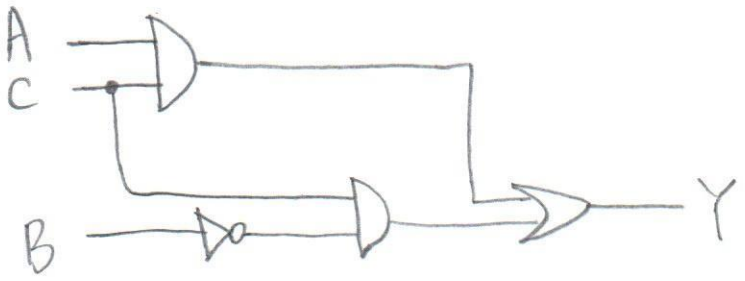
(2) NOR-only





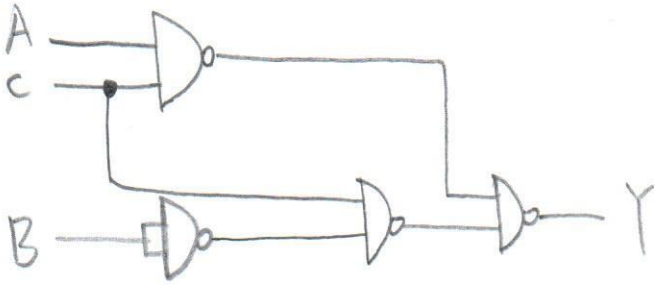
(3/4)

2、(1) AND-OR



(2) NAND

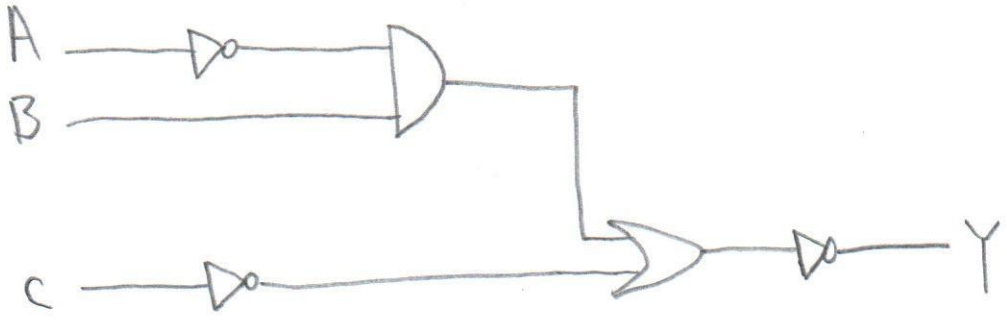
$$Y = Ac + \bar{B}c = \overline{\overline{Ac + \bar{B}c}} = \overline{\bar{A}c \cdot \overline{\bar{B}c}}$$



(3) AOI

A \ BC	00	01	11	10
0	0	1	0	0
1	0	1	1	0

$$Y = \overline{\bar{C} + \bar{A}B}$$



(4/4)

(4) NOR

$$Y = \overline{\bar{C} + \bar{A}B} = \overline{\bar{C} + \overline{\bar{A}B}} = \overline{\bar{C} + \overline{A + \bar{B}}}$$