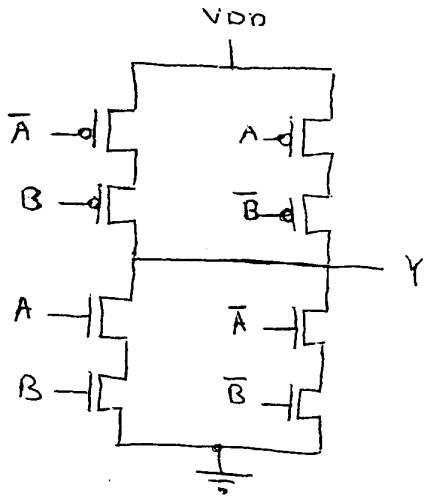
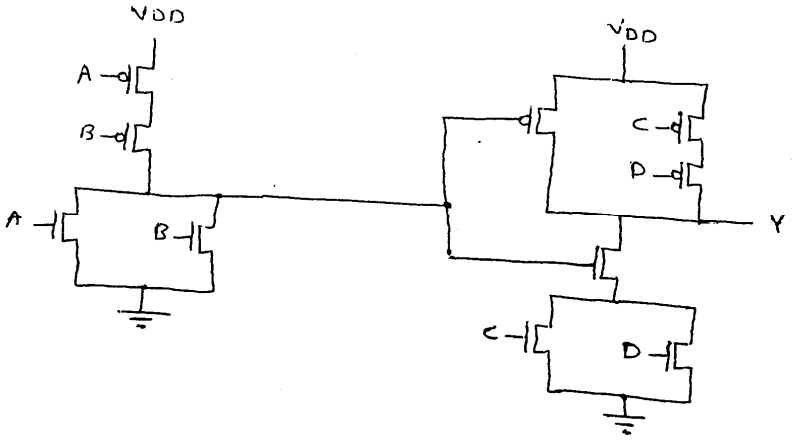
COE 360, Principles of VLSI Design, Term 071
HW# 4

Q.1. Draw the stick diagram layout of the transistor-level implementations shown below. Minimize the wire lengths and the contact cuts used.

(i)

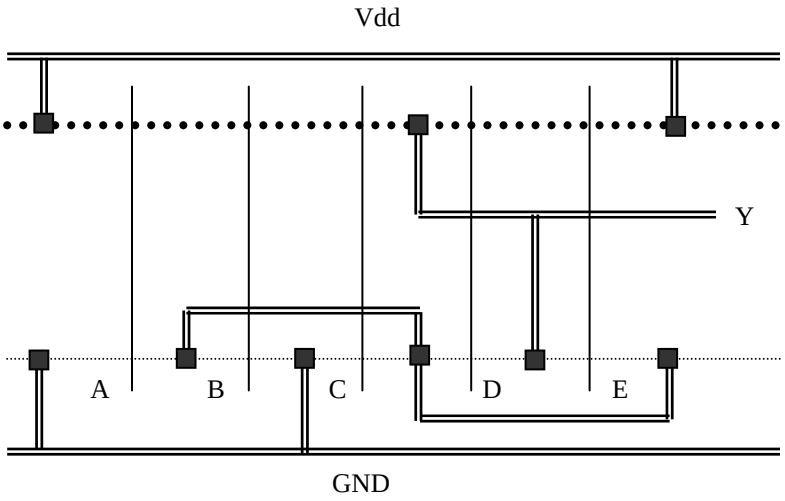


(ii)

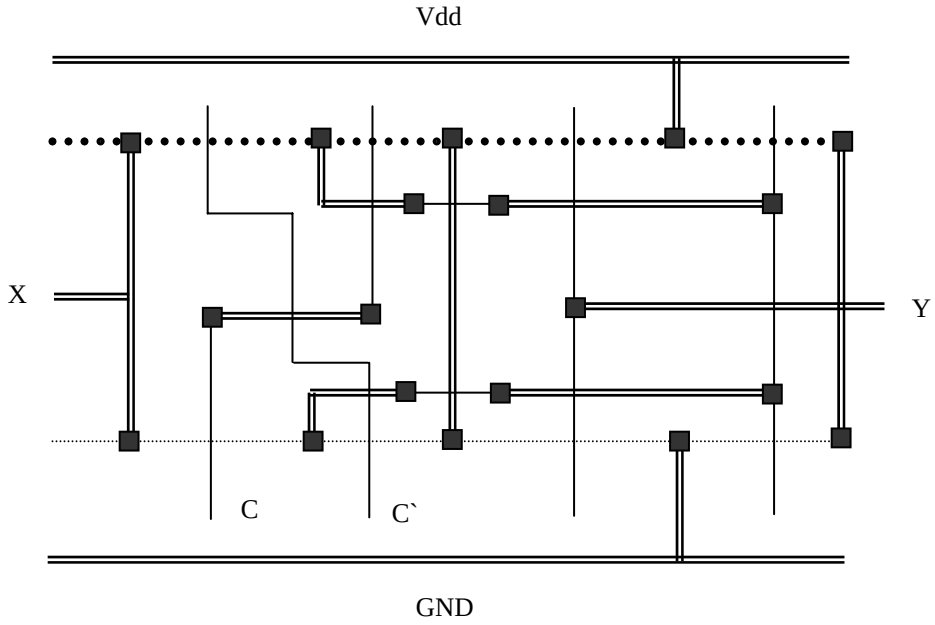


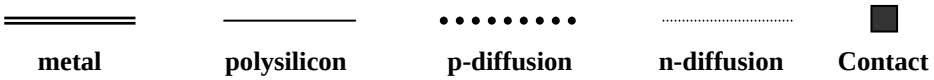
Q.2. Determine the transistor-level implementation of the stick diagram layouts shown below and determine the function implemented by each.

(i)

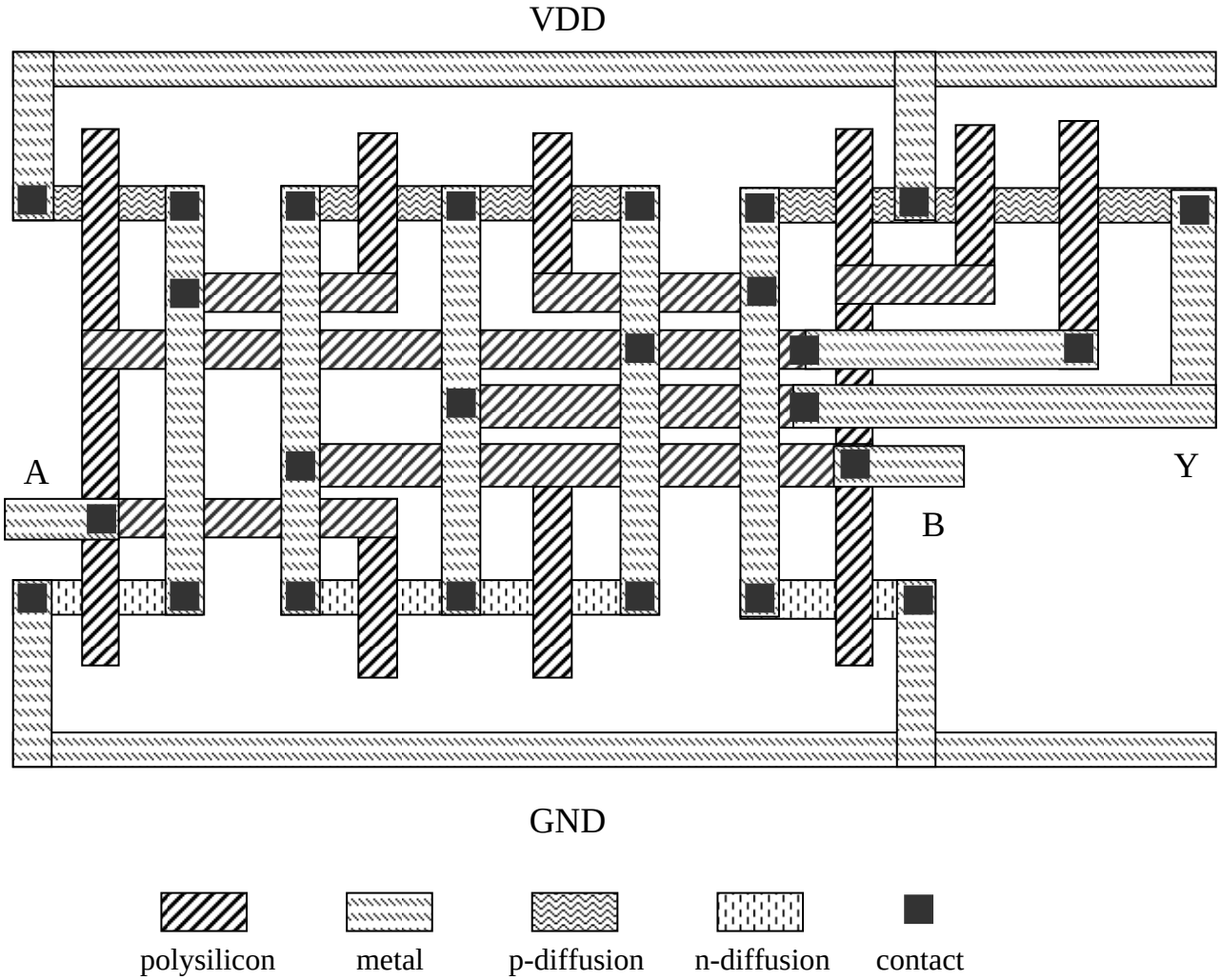


(ii)





Q.3. Given the layout shown below, implementing the function Y=f(A,B), extract the transistor-level circuit corresponding to the layout and determine the function it implements.



Q.4. Illustrate the fabrication steps for the tristate inverter shown below in an N-Well CMOS process. Illustrate the processing steps by showing both a cross-sectional view and the masks used. Assume that the complement of C (i.e., C`) is given.