National University

of Computer and Emerging Sciences Chiniot -Faisalabad Campus

EE1005 – Digital Logic Design
Quiz# 3

Instructor: Muhammad Adeel Tahir **Section:** SE-2B **Time:** 20 Minutes

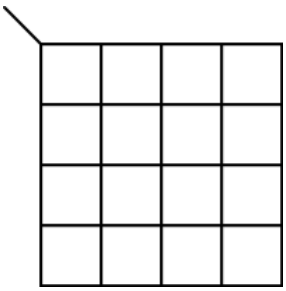
Name: _____

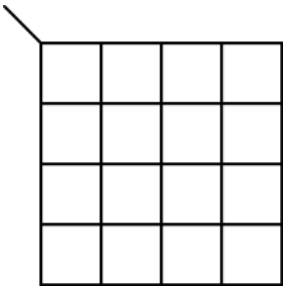
Roll No: _____ **Total: 20 marks**

Note: *Use the back side of the page if needed. Make sure the handwriting is neat and clean while drawing the circuit, quiz will be marked as 0 if attempted in a writing that is not readable at all.* ***Proper labelling of each output is compulsory. Cutting will lead to negative marks.***

Q1: Simplify the following function, and implement them with two-level NAND gate circuits: **(5+5=10 marks)**

$$F(A,B,C,D) = A'B'C'D + CD + AC'D$$

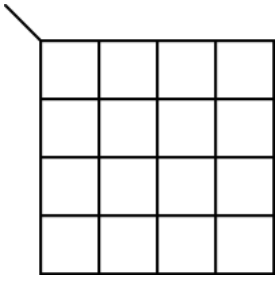




Working:

Circuit Diagram:

Q2: Simplify the Boolean function $F(w,x,y,z) = \Sigma(4,5,6,7,12)$ with don't care function $d(w,x,y,z) = \Sigma(0,8,13)$. Also draw the circuit diagram. **(2 marks)**



F = _____

Circuit Diagram:

Q3: Implement the following function F using 2 Input NOR gates only for 1st level and 4-Input NOR gate for 2nd level: **(4+4=8 marks)**

$$F = \sum(0,3,12,15)$$