

BRAC UNIVERSITY
CSE460
VLSI DESIGN
Quiz - 4
Time: 30 minutes
Set-B

Name:

ID:

Section:

Question 1: [20 Marks]

Suppose you have a NOR-2 driving h number of inverters.

- (a) Find k_n and k_p for both gates if you want equal rise and fall times. [2]
- (b) Draw the RC equivalent circuit for the NOR gate with the inverter load in its output node. [6]
- (c) Find the expressions of t_{pdr} , t_{cdr} , t_{pdf} , and t_{cdf} . [8]
- (d) If $R = 10 \text{ k}\Omega \cdot \mu\text{m}$ and $C = 15 \text{ fF}/\mu\text{m}$ in a 10 nm technology, find the values of the four delays whose expressions you found in (c). Suppose you have 200 inverters as load. [4]