Information Technology University of the Punjab
SE201 Digital Logic Design – Fall 2024
Quiz 1 – August 30, 2024

Name: Solution **Roll No.:** —
Time allowed: 5 minutes **Maximum Marks: 10**

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1. Simplify the following Boolean function "AB+[(B+C).(BC)]" (3 marks)

   a. A.B+C
   b. A.(B+C)
   c. C.(A+B)
   d. B.(A+C) ✓

Distributive Law

$(B+C).(BC) = (B.BC)+(C.BC)$

$(B.B.C)+(C.B.C)$

Idempotent Law $B.B = B$ and $C.C = C$

$B.C + B.C = BC$

$AB + BC$

$B(A+C)$

2. Complement of this expression " A+BC " is given by (3 marks)

   a. A'+B'C'
   b. A'.B' +C' ✓
   c. A'B'+A'C'
   d. A.B'+A'.C

$=(A+BC)'$

$=(A+BC)' = A'.(BC)'$ De Morgan's Law

$=(BC)' = B'+C'$ De Morgan's Law

combine the terms

$= A'.(B'+C') = A'.B'+C'$

3. The minimum number of 2 input AND gates used for constructing a 4 input AND gate is (2 marks)

   a. 2
   b. 3 ✓
   c. 4
   d. 5

4. The order of evaluation in a Boolean expression is: (2 marks)
   1) Parentheses 2) NOT 3) AND 4) OR

   a. True ✓
   b. False
   c. Invalid

slide # 9
Lec # 2