



King Saud University

College of Computer and Information Sciences

Department of Computer Science

CSC 220: Computer Organization

Lab#3

Question # 3

Given the Boolean function $F = xy'z + x'y'z + xyz$

- List the truth table of the function.
- Draw the logic diagram using the original Boolean Expression.
- Simplify the algebraic expression using Boolean algebra.
- List the truth table of the function from the simplified expression and show that it is the same as the truth table in part (a).
- Draw the logic diagram from the simplified expression and compare the total number of gates with the diagram of part (b).

Question # 4

The following is an unsimplified Boolean algebra functions with Boolean variables A, B, C, D

$$f(A, B, C, D) = (A'BCD') + (AB'C'D') + (AB'C'D) + (AB'CD') + (AB'CD) + (ABC'D') + (ABC'D) + (ABCD')$$

- Draw the truth table of this Boolean function.
- Draw the K-Map using the truth table.
- Using K-Map rules of simplification, determine the simplified Boolean expression.