



HACETTEPE UNIVERSITY
ELECTRICAL AND ELECTRONICS ENGINEERING
ELE237 FUNDAMENTALS OF DIGITAL SYSTEMS

Name:

Number:

Quiz 1: Friday, 12:15-12:35 (08.11.2019)

Experiment 1 – Implementation of Boolean Functions and Gate-Level Minimization in VHDL

Q) For the function given in sum-of-minterms form,

$$F(A, B, C, D) = \sum (1, 4, 5, 7, 8, 10, 13, 15)$$

- 1) Complete the truth table for all possible inputs and corresponding outputs.
- 2) Complete the Karnaugh map according to truth table/minterms. *(Complete the necessary names and numbers for rows and columns.)*
- 3) Using K-Map for F, find the simplified expression for the output.

A	B	C	D	Output (F)

F =

- 4) Simplify the same function with don't care conditions,

$$d(A, B, C, D) = \sum (0, 2)$$

using the K-Map and find the simplest expression for F.

F =