Student Name: **Instuctor: Mustafa Altun**

Student ID:

Date: 25/12/2020

EHB 205E: Introduction to Logic Design

Quiz 3

Duration: 90 Minutes
Grading: 1) 50%, 2) 50%
Quiz is in closed-notes and closed-books format
For your answers please use the space provided in the exam sheet
GOOD LUCK!

1. Implement a 4-variable Boolean function $f(x_1, x_2, x_3, x_4) = \sum(2,4,5,7,8,9,11,13,15)$ using **a single 4-to-1 multiplexer** and minimal number of **two-input NOR gates.** Use x_1 and x_2 as select input lines in the multiplexer. Use only variables x_1, x_2, x_3, x_4 as inputs (**not their negated forms)**.

2. Implement a 4-variable Boolean function $f(x_1, x_2, x_3, x_4) = \sum(2,4,5,7,8,9,11,13,15)$ using **a single decoder** and minimal number of **two-input NAND gates.** Use only variables x_1, x_2, x_3, x_4 as inputs (**not their negated forms)**.