

ShanghaiTech University

EE 115B: Digital Circuits

Fall 2022

Homework 3

Total: 100 Points

Assigned: October 20, 2022. Due: October 27, 2022.

1. Develop the minimum SOP and POS expressions for the following function using Karnaugh map. For each form (SOP and POS), write two expressions: without and with the don't cares. (40 points.)

$$Y(A, B, C, D) = \sum m(0, 2, 8, 9, 10, 15) + D(1, 3, 6, 7)$$

2. Develop the minimum SOP expression for the following function using the Quine-McCluskey method. (60 points.)

$$Y(A, B, C, D) = \sum m(0, 1, 2, 4, 5, 6, 11, 13, 15)$$