EE 2000 Logic Circuit Design
Semester B 2023/24

Assignment 1

The solutions must be handwritten (20% deduction if not), scanned and uploaded to CANVAS by 23:59 hours, Feb 7, 2024. Please do not use iPad to write the solution – treat this as practice for your examination and write on paper. **Please write your name and student No on the top of each answer sheet.**

1. Simplify the following logic expression using Boolean algebra. (15 marks)

$$F = \overline{\overline{wx} \cdot \overline{y+z}} \cdot \overline{\overline{wx}y+z}$$

2. Use K-map to find all of the minimum SOP expressions and all of the minimum POS expressions of the following function. If there is more than one solution, label the solutions f_1, f_2,…

$$f(w,x,y,z) = \Sigma m(0,1,3,5,7,8,14) + \Sigma d(2,12,15)$$ (41 marks)

3. Use Quine-McCluskey method to find all of the minimum SOP expressions of the following function. If there is more than one solution, label the solutions f_1, f_2,…

$$f(w,x,y,z) = \Sigma m(1,3,4,7,13,15) + \Sigma d(0,5,6,8,12)$$ (44 marks)