CME1214 Logic Design
Experiment 3

1. The following function is given. Implement it using a 3x8 multiplexer.

$$F(A, B, C, D) = \prod (0, 2, 5, 9, 11, 14)$$
$$d\ (\text{don't care})\ (A, B, C, D) = \sum (3, 8, 10, 15)$$

2. Design a circuit that displays the prime and non-prime integers between 0-7. Use a 3x8 Demultiplexer(DEMUX) and 2-input AND gates to implement the design.

$$F_1(A, B, C) = \sum (0, 1, 4, 6)$$
$$F_2(A, B, C) = \sum (2, 3, 5, 7)$$

Preliminary Work

Draw truth tables, Karnaugh maps, logic diagrams and waveforms of the design.

Equipments

- 74LS151 (Multiplexer), 74LS138 (DeMultiplexer) and other necessary ICs such as Inverter, OR, AND
- Breadboard
- Connection cables

See the Instructions at the end of the document.

Instructions:

- You should only *one* "**pdf**" file that contains both **your prelab screenshots** and **photos of experiments**.
- **The file path of your screenshots** should be **visible**, otherwise your work won't get any point.
- **Your student card** should in **the photos of the experiments**, otherwise your work won't get any point.

Your "pdf" file name should be "studentNo_name_surname.pdf"