CSE 206 – July 2021

A1 and B2

Online on Multiplexers

Time: 50 minutes (including upload time) **Full Marks: 10**

Question: Implement the following function using only ONE 4×1 multiplexer and required number of basic gates.

1. $f = \prod(4,5,6,10,11,12,14)$
2. $f = \sum(4,5,6,8,9,10,11,15)$
3. $f = \prod(1,2,3,8,12,13,14,15)$
4. $f = \sum(2,3,5,6,7,12,14)$
5. $f = \prod(0,4,6,14,15)$
6. $f = \sum(5,6,7,11,12,13,14,15)$

Divide your roll number by 6. The remainder is your assigned problem if the remainder is non-zero, otherwise problem 6 is.

1. Draw the Truth Table and derive the necessary equations by hand. These should be scanned and converted into a single pdf file. *[Marks: 5]*
2. Design the circuit in Logisim. *[Marks: 5]*

Submit the PDF file and the .circ file simulated in Logisim in a single zip file named by your student ID to Moodle.

Hint: You may get benefit if you take the most significant two bits as the selection variables to the multiplexer. However, it is not guaranteed for all.