CSE 206 – July 2021

A2

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.

0. $f(A, B, C, D) = \sum(3, 4, 5, 7, 10, 12, 14)$; Use A, B as selection bit
1. $f(A, B, C, D) = \prod(1, 5, 7, 8, 12, 13, 15)$; Use A, C as selection bit
2. $f(A, B, C, D) = \sum(0, 3, 5, 7, 11, 13, 14)$; Use A, D as selection bit
3. $f(A, B, C, D) = \prod(2, 4, 5, 6, 8, 12, 15)$; Use B, C as selection bit
4. $f(A, B, C, D) = \sum(0, 2, 5, 6, 8, 14, 15)$; Use B, D as selection bit
5. $f(A, B, C, D) = \prod(1, 5, 6, 7, 11, 12, 14)$; Use C, D as selection bit

Divide your roll number by 6. The remainder is your assigned problem.

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.