

CSE 206 – July 2021

B1

Online on Asynchronous Counters

Time: 50 minutes (including upload time) Full Marks: 12

Design a Three-bit Asynchronous Counter using only T Flip-Flops (Convert JK to T FF) and basic gates. You can only use 74YY series ICs. Failing to adhere to the guidelines and/or failing to submit in Moodle will result in ZERO marks.

What Sequence to count:

- your student ID %2==0, then **Asynchronous Down Counter**
- your student ID %2==1, then **Asynchronous Up Counter**

★ Draw the Transition Table and derive the necessary equations by hand. These should be scanned and converted into a single pdf file.

[Marks: 6]

★ Design the circuit in Logisim using proper IC. Use Edge-Triggered Flip Flops wherever necessary. *[Marks: 6]*

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