

CS2310: Foundations of Computer System Design Lab

August-November 2021 Semester

Assignment 2

Date: 24th August, 2021

Deadline for Submission: 11.59PM on 30th August, 2021

The test data details are indicated for each question

1. **2-bit 4-to-1 multiplexer:** For each of the 4 sources, all the 4 combinations of 2-bit data
2. **2-bit 4-to-1 priority multiplexer:**
 - a) Only one request input to the priority encoder is active. For that device, all the 4 combinations of 2-bit data.
 - b) At least 2 request inputs to the priority encoder are active. 4 different combinations of the request inputs, and one combination of 2-bit data for combination of request inputs.
3. **2-bit 1-to-8 demultiplexer:** For each of the 8 destination devices, one combination of 2-bit input data
4. **8-bit comparator:**
 - a) 2 sets of input operands that are the same.
 - b) 2 sets of input operands that are different.
5. **8-bit parity generator and parity checker:** 4 different combinations of 8-bit data. For each combination, 2 cases of 1-bit error in a data bit or the parity bit, and 1 case of no error either in data bits or parity bit.