Question: 06
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1 Background

Create a test bench to demonstrate the functionality of the following code in which a and b are 1-bit inputs. Note this example as provided breaks certain coding rules. The test bench should produce a table using the **$strobe** task. Your calls should print time using **%0t** and **$time**. Provide your test bench and the output. Use the output to produce a condensed table with comments explaining the operation of the circuit.

2 Implementation

The provided code was directly used to implement the module in Part 6, and can be found in the 'scripts' directory. A sample of the waveform generated is provided:

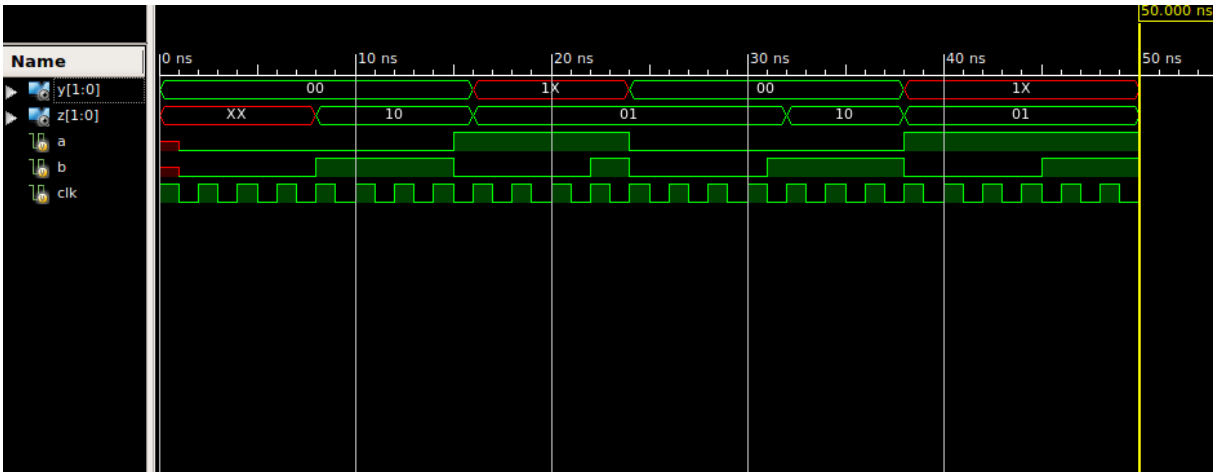

Figure 1: Waveform Generated from Part 6 Test Bench

The following table is generated from the test bench as well, demonstrating the usage of the circuit:

Table 1: Inputs and Outputs of The Part 6 Test Bench

time	a	b	y	z
3000	0	0	00	xx
10000	0	1	00	10
17000	1	0	1x	01
24000	0	0	00	01
26000	0	0	00	01
33000	0	1	00	10
40000	1	0	1x	01
47000	1	1	1x	01

3 Observations

The module appears to simulate a variation of a multi-bit multiplexer, although with poor implementation. The cases in the behavior do not cover all conditions, and therefore outputs are uncertain depending on certain combinations of the inputs.