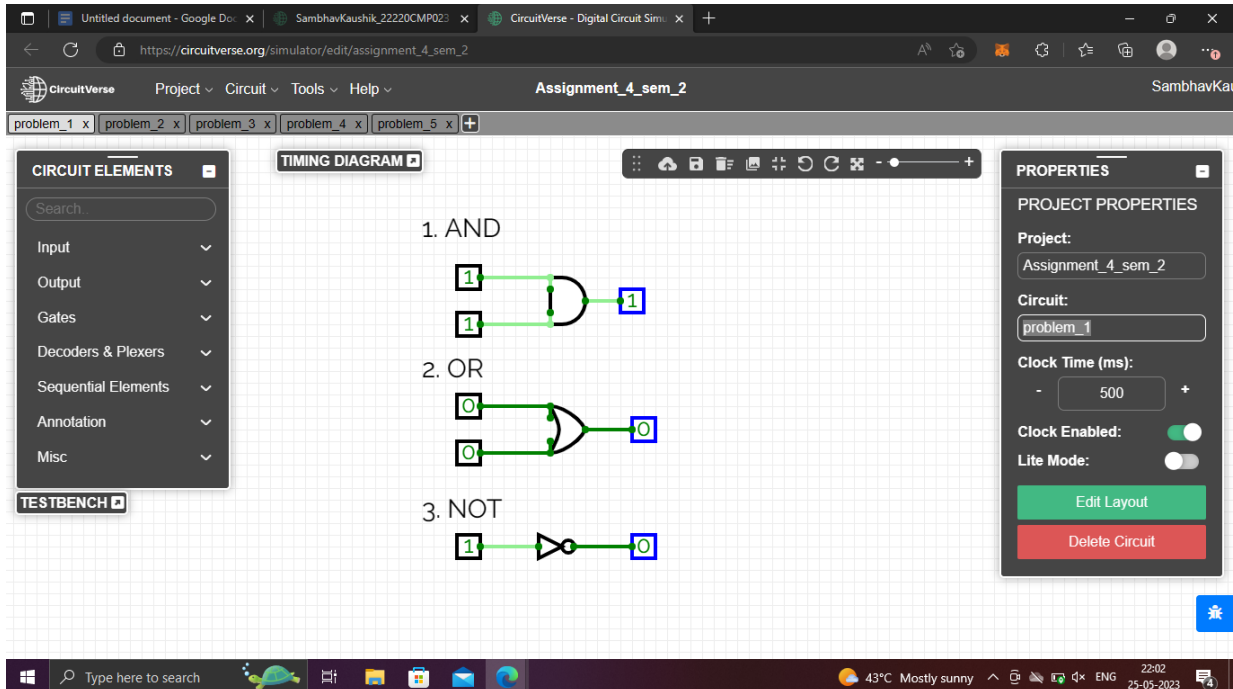


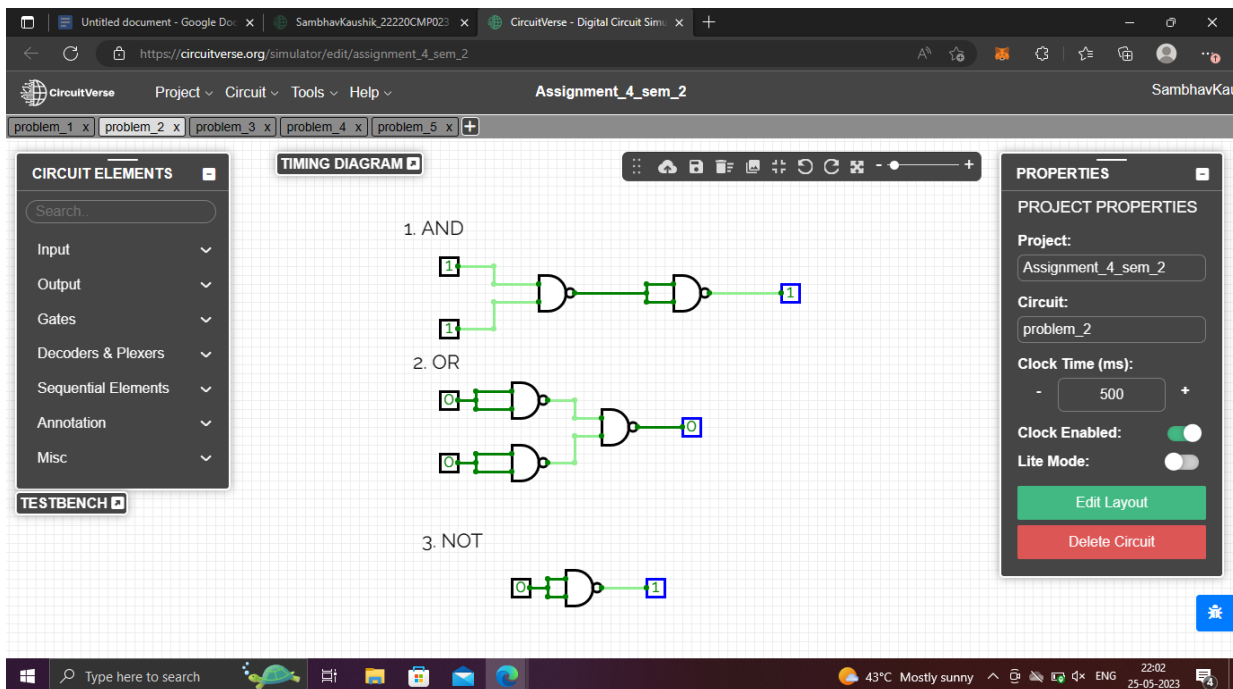
## Assignment 4

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### • Problem 1:



### • Problem 2:



### • Problem 3:

The screenshot shows the CircuitVerse web interface. The browser address bar displays [https://circuitverse.org/simulator/edit/assignment\\_4\\_sem\\_2](https://circuitverse.org/simulator/edit/assignment_4_sem_2). The page title is "Assignment\_4\_sem\_2". The left sidebar contains a "CIRCUIT ELEMENTS" panel with a search bar and categories: Input, Output, Gates, Decoders & Plexers, Sequential Elements, Annotation, and Misc. Below this is a "TESTBENCH" button. The main workspace is titled "TIMING DIAGRAM" and shows three logic gate implementations on a grid:

- 1. AND**: An AND gate with two inputs, one set to 0 and the other to 1. The output is 0.
- 2. OR**: An OR gate with two inputs, both set to 0. The output is 0.
- 3. NOT**: A NOT gate with one input set to 1. The output is 0.

On the right, the "PROPERTIES" panel shows "PROJECT PROPERTIES" with "Project: Assignment\_4\_sem\_2" and "Circuit: problem\_3". It also includes "Clock Time (ms): 500", "Clock Enabled: [checked]", and "Lite Mode: [unchecked]". Buttons for "Edit Layout" and "Delete Circuit" are at the bottom of the panel.

### • Problem 4:

The screenshot shows the CircuitVerse web interface for Problem 4. The browser address bar displays [https://circuitverse.org/simulator/edit/assignment\\_4\\_sem\\_2](https://circuitverse.org/simulator/edit/assignment_4_sem_2). The page title is "Assignment\_4\_sem\_2". The left sidebar is identical to the previous screenshot. The main workspace shows two more logic gate implementations:

- 1. XOR**: An XOR gate implemented using two AND gates, two NOT gates, and one OR gate. The inputs are 0 and 0, and the output is 0.
- 2. XNOR**: An XNOR gate implemented using two AND gates, two NOT gates, one OR gate, and one final NOT gate. The inputs are 0 and 0, and the output is 1.

The "PROPERTIES" panel on the right is identical to the previous screenshot, but the "Circuit" name is now "problem\_4".

## ● Problem 5:

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https://circuitverse.org/simulator/edit/assignment\_4\_sem\_2

CircuitVerse Project Circuit Tools Help Assignment\_4\_sem\_2 SambhavKa

problem\_1 x problem\_2 x problem\_3 x problem\_4 x problem\_5 x +

**CIRCUIT ELEMENTS**

Search...

- Input
- Output
- Gates
- Decoders & Plexers
- Sequential Elements
- Annotation
- Misc

**TESTBENCH**

**TIMING DIAGRAM**

1.  $F(X, Y, Z) = XY' + XZ' + YZ$

**PROPERTIES**

**PROJECT PROPERTIES**

**Project:** Assignment\_4\_sem\_2

**Circuit:** problem\_5

**Clock Time (ms):** 500

**Clock Enabled:** ☒

**Lite Mode:** ☐

Edit Layout

Delete Circuit

43°C Mostly sunny 22:03 25-05-2023