Experiment 2

With reference to the VHDL description in `~csci355/Lab2/lab2.vhd`:

Task: Extract the IC logic schematic from the VHDL description.

Deliverable (D1): IC logic schematic.

Task: Extract the combinational logic schematic.

Deliverable (D2): Logic schematic.

Task: Perform algebraic analysis.

Deliverable (D3): Network expression specifying the output in terms of its inputs.

Task: Perform literal analysis.

Deliverable (D4): Truth table with one output column for each of `I1, I2, I3, I4` and `E`.

Task: Derive a minimal SOP expression for the modeled circuit.

Deliverable (D5): A listing of all the prime-implicants, the essential prime-implicants and the secondary prime-implicants. A minimal SOP expression and a K-Map showing the corresponding implicant cover.

Task: Develop a testbench for the modeled circuit You must use a gold function as exemplified in the testing of SN7400. You must use your minimal SOP expression as the gold function.

Deliverable (D6): Electronic submission of source code (`make submit`).

Task: Specify IC interconnections.

Deliverable (D7): One completed pin-out sheet (at least) for each IC employed in the physical design.

Task: In the laboratory, wire-up your physical design, verify its behaviour and sign-off on the design/implementation.

Deliverable (D8): A physical realization of the combinational system that behaves to specification. Details of the circuit-verification process. Student signature indicating that the circuit behaves as specified.

Task: Document any relevant results, explanations or comments.

Deliverable (D9): A section in your report entitled Results/Explanations/Comments in which you have detailed any relevant results, explanations or comments.

NOTES