Logic Design Laboratory Report

Student name Student number

Experiment date: _____

Experiment brief: design, implement, and test a two-input alarm controller.

1 Objective and specification

The output Y should be high when the system is armed and either sensor A or sensor B is active. Define any active-high assumptions and list the hardware or simulator used.

2 Design

$$Y = E(A + B), \qquad E = \text{armed state}.$$

Describe the chosen gates, simplifications, pin assignments, and the reason the design satisfies the specification. Insert a circuit diagram or waveform in this section when one is available.

3 Truth table

Table 1: Complete test plan. Mark the observed output in the final column.

E	A	B	Y predicted	Y observed	Notes
0	0	0	0	_____	
0	0	1	0	_____	
0	1	0	0	_____	
0	1	1	0	_____	
1	0	0	0	_____	
1	0	1	1	_____	
1	1	0	1	_____	
1	1	1	1	_____	

4 Implementation and evidence

Record the build steps, test equipment, simulator settings, and any warnings. Attach screenshots or measured waveforms only when they support a stated claim. Include at least one negative test and one boundary case.

5 Discussion and conclusion

Explain discrepancies, propagation delay, switch bounce, or loading where relevant. Conclude whether every row of the specification was met and suggest one change that would make the design easier to verify.