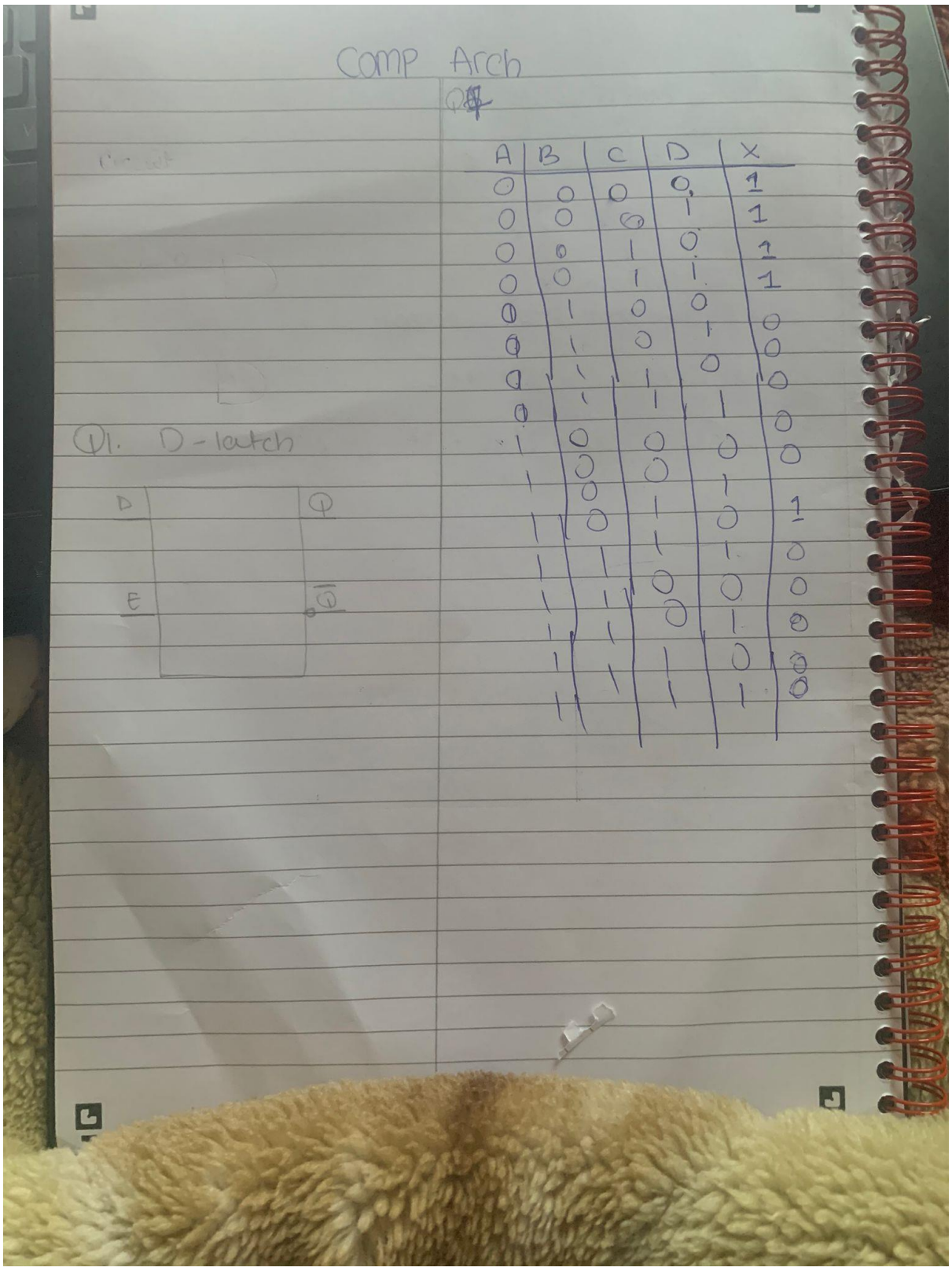
Student ID: R00201303

Class: COMP1D-Y



Q3

expression :- $\bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C + ABC$

	$\bar{A}\bar{B}$	$A\bar{B}$	AB
$\bar{C}$	0	1	0
C	1	1	1

$\bar{A}BC + A\bar{B}C + AC$

$\bar{A}BC + AC$

Q4 i

		R
19/2 =	9	1
9/2 =	4	1
4/2 =	2	0
2/2 =	1	0
1/2 =	0	1

ii $19_{(10)} = 10011_{(2)}$ => 0.25 fraction

iii $.25 \times 2 = 0, 0.5$

$.5 \times 2 = 1, 0$

$.25_{(10)} = 0.01_{(2)}$

iv $19.25_{(10)} = 10011.01 \times 2^0 \Rightarrow 1.001101 \times 2^4$

v) $4 + 2^{(8-1)} - 1$

$= 131_{(10)}$

131/2 = 65 R1

65/2 = 32 R1

32/2 = 16 R0

16/2 = 8 R0

8/2 = 4 R0

4/2 = 2 R0

2/2 = 1 R0

1/2 = 0 R1

1000 0011

8 expression = $\bar{A}\bar{B}\bar{C}D + \bar{A}B\bar{C}D + A\bar{B}\bar{C}D + A\bar{B}CD + AB\bar{C}\bar{D} + ABC\bar{D}$

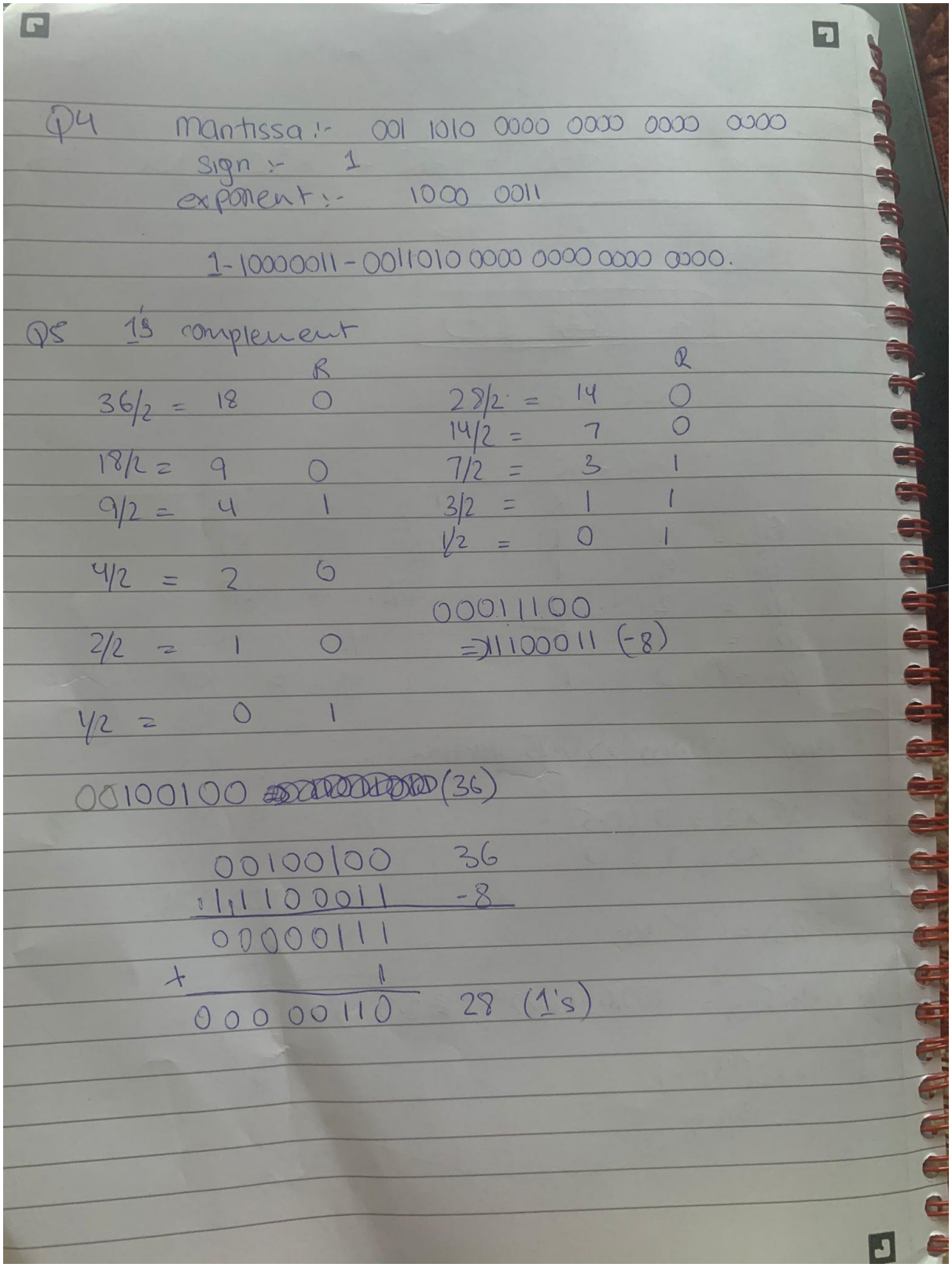
CD / AB	00	01	11	10
00	X	1	1	X
01	X	0	0	X
11	1	0	0	1
10	0	1	1	0

$= A\bar{B}D + \bar{A}\bar{B}D + AB\bar{C}\bar{D} + ABC\bar{D}$

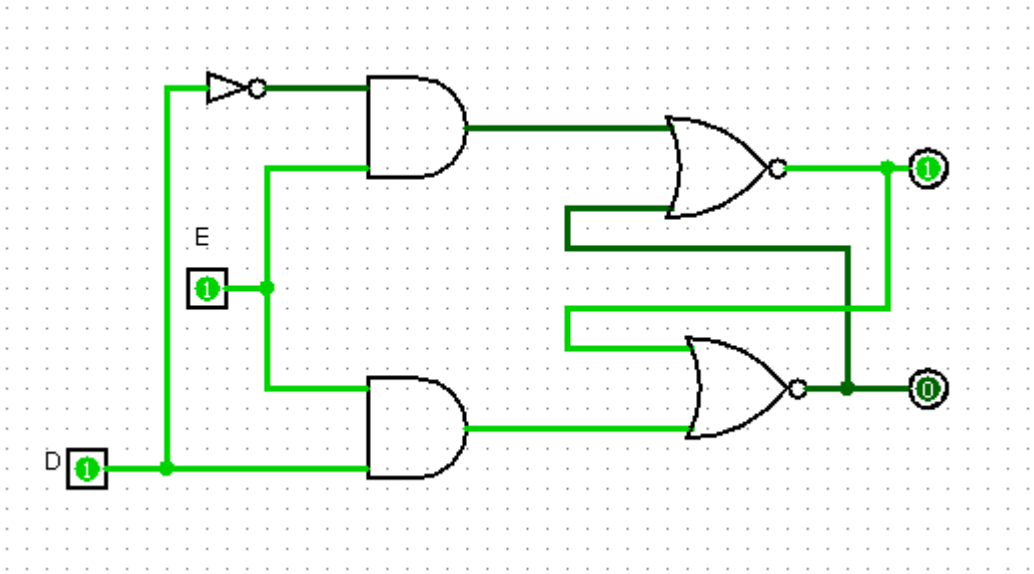
Q10 Expression = $\bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}CD + A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D} +$

CD / AB	00	01	11	10
00	1	1	1	1
01	0	0	0	0
11	0	0	0	0
10	1	0	0	1

$= AB + A\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D}$



Q1. D Latch circuit



Truth table:

E	D	Q(T+1)
0	0	Qt
0	1	Qt
1	0	0
1	1	1

How does it operate:

A D latch is like an S-R latch with only one input: the “D” input. Activating the D input sets the circuit, and de-activating the D input resets the circuit. Of course, this is only if the enable input (E) is activated as well. Otherwise, the output(s) will be latched, unresponsive to the state of the D input.

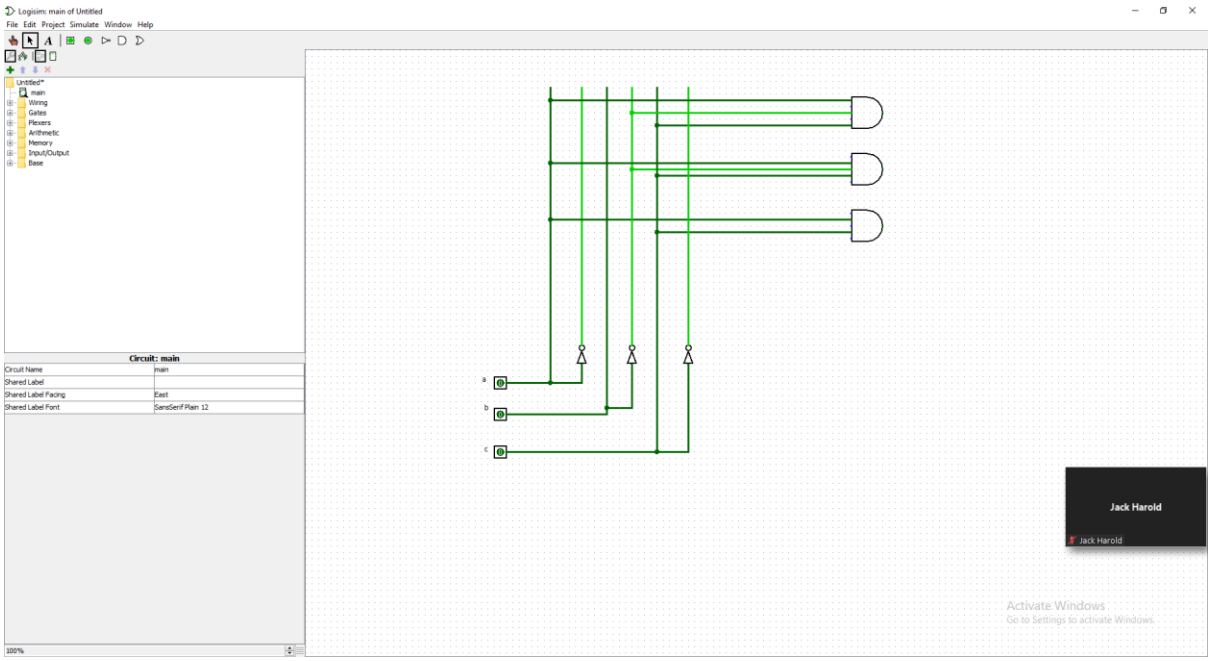
D latches can be used as 1-bit memory circuits, storing either a “high” or a “low” state when disabled, and “reading” new data from the D input when enabled.

Q2.

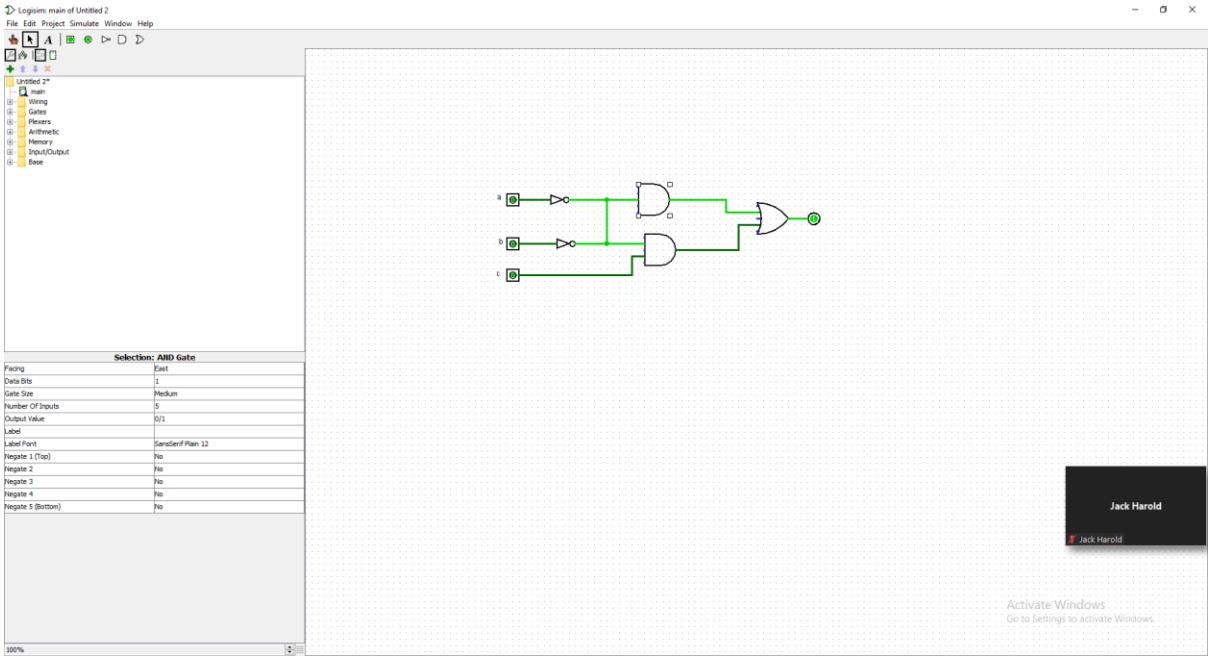
Hamming codes may detect and repair one-bit and two-bit errors while leaving untreated faults undetected. The simple parity code, on the other hand, cannot rectify faults and can only identify an odd number of bits in error. The Hamming code is a set of error-correction codes that can be used to detect and fix faults that can arise when data is transferred or stored from

one source to another. R.W. Hamming invented this approach for error correction. Only an odd number of faults in a codeword can be detected by a single parity check code. The difference is that error detection is a technique for examining data to see if it has been corrupted during storage or transmission. Error repair is a step up from error detection; when it identifies an error, it attempts to restore the data to its original state. Because a single extra bit is added to each byte of data and assigned a value of 1 or 0, often depending on whether there are an even or odd number of "1" bits, parity is the optimum method for error detection.

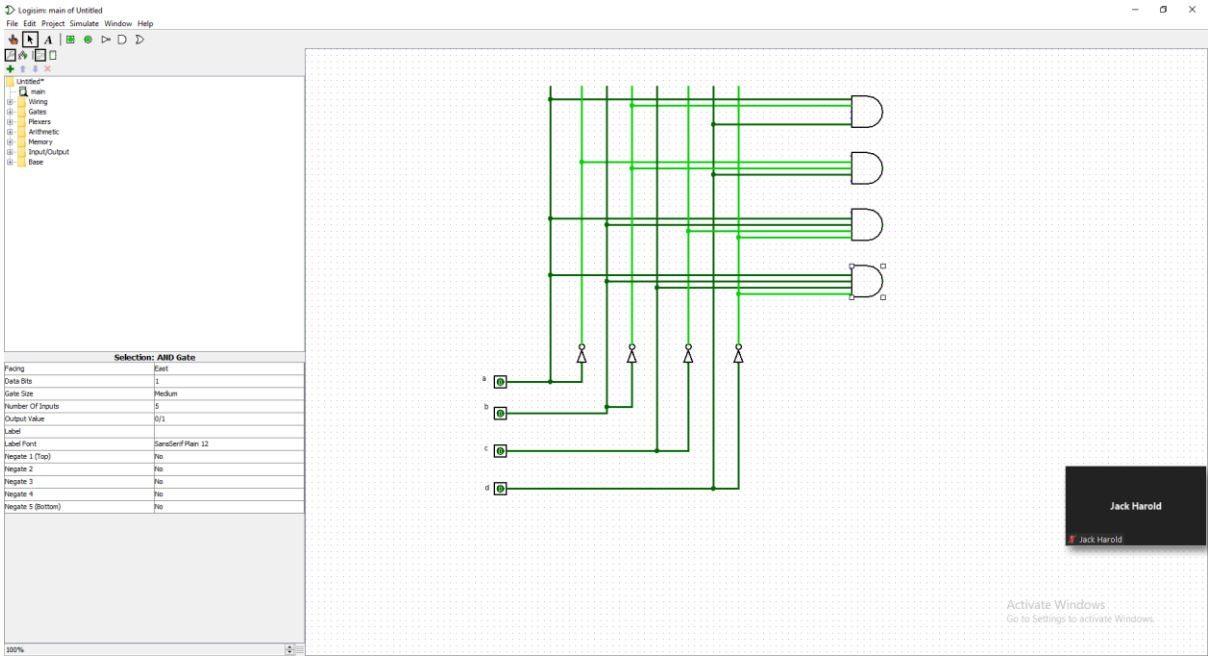
Q3.Circuit



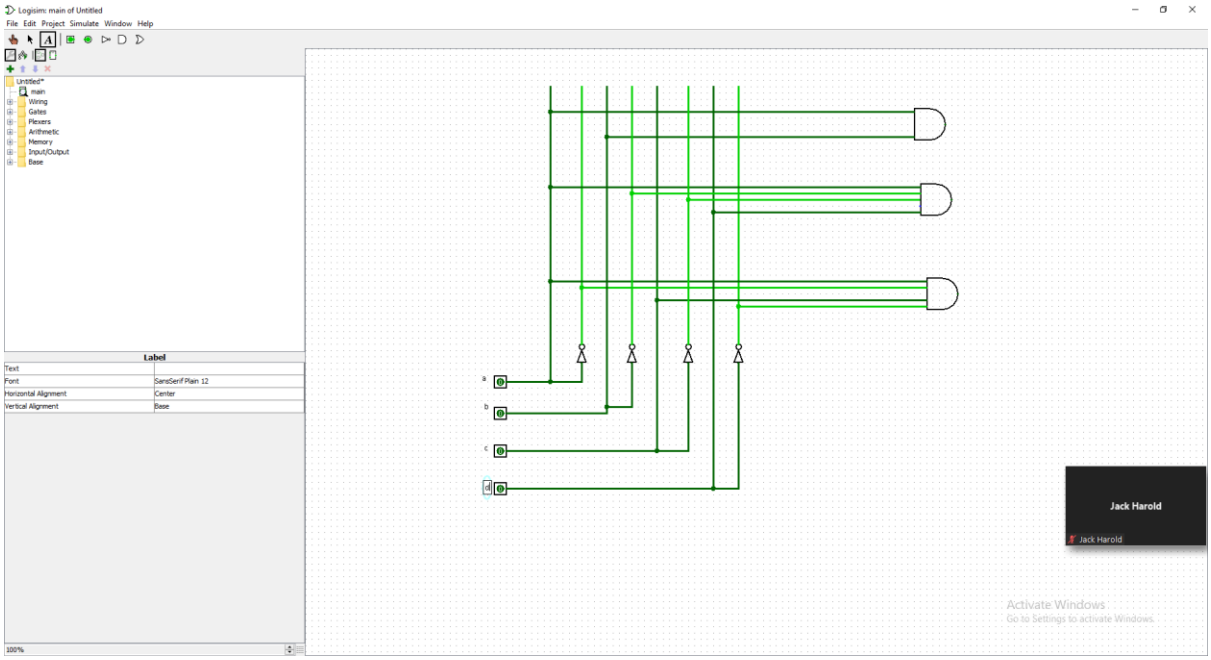
Q7.circuit



Q8.Circuit



Q10.Circuit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Wiring
Gates
Plexers
Arithmetic
Memory
Input/Output
Base
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Text
Font
SansSerif Plain 12
Horizontal Alignment
Center
Vertical Alignment
Base
100%
a
b
c
d
Jack Harold
Jack Harold
Activate Windows
Go to Settings to activate Windows.