VLSI Lab

LABORATORY MANUAL

Spring 2019

LAB 12

Title of Lab Experiment: Symbol generation of bsic digital designs using Pseudo NMOS Technology on S-Edit

Engr. Rashid Karim

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STUDENT NAME ROLL NO SEC

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LAB ENGINEER SIGNATURE & DATE

MARKS AWARDED: /10

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LAB:	12	Symbol generation of basic digital designs using Pseudo NMOS Technology on S-Edit

1. Learning Objectives:

a. Symbol generation in S-Edit of Pseudo NMOS.

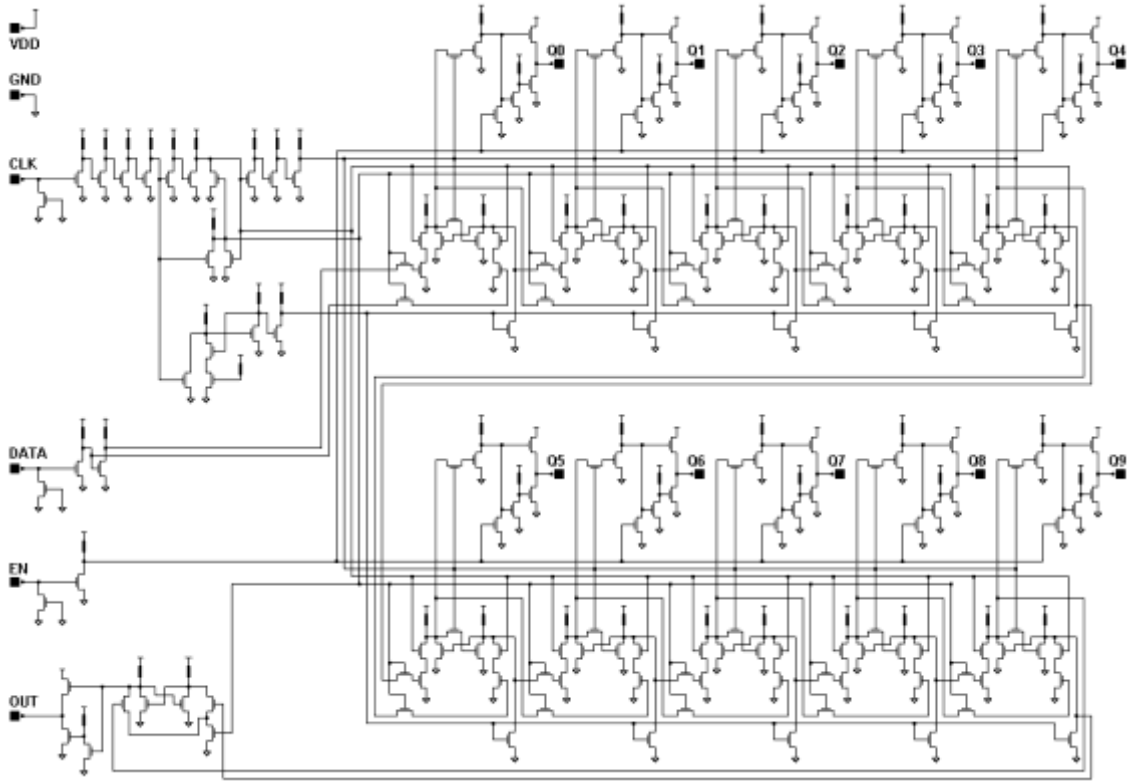
2. Equipment Required:

Software : S-Edit

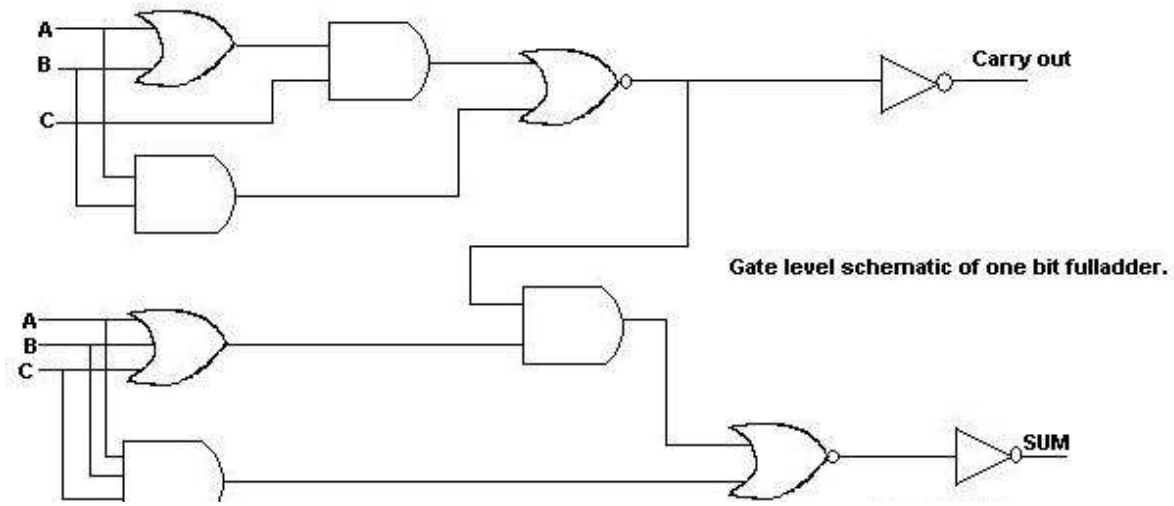
3. Introduction:

Block diagrams are typically used for higher level, less detailed descriptions that are intended to clarify overall concepts without concern for the details of implementation. Contrast this with the schematic diagrams and layout diagrams used in electrical engineering, which show the implementation details of electrical components and physical construction.

Complex transistor level diagram:

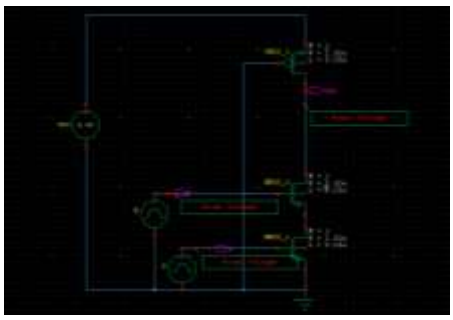


Simple and easy to understand Gate (symbol) level diagram:

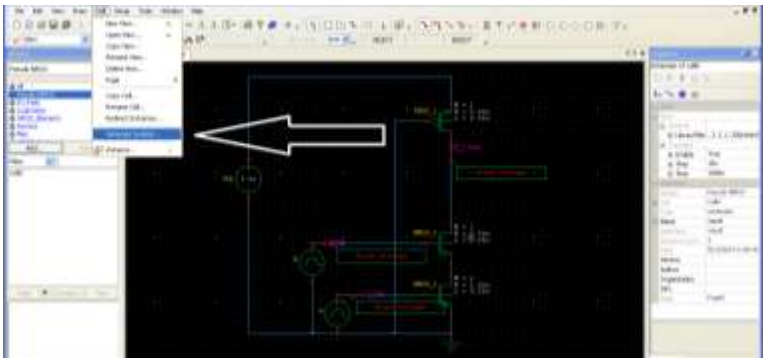


4. Procedure :

Symbol generation:

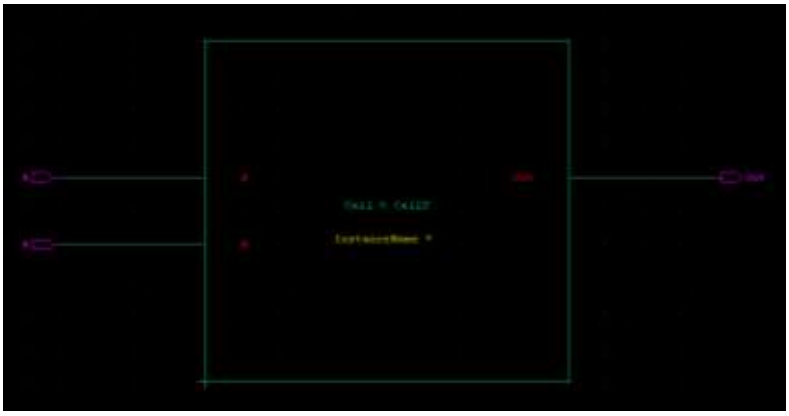


Cell -> Generate symbol



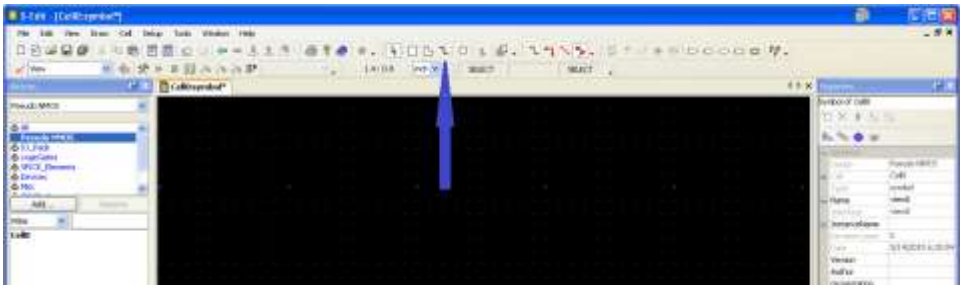
Modify

Symbol generated.

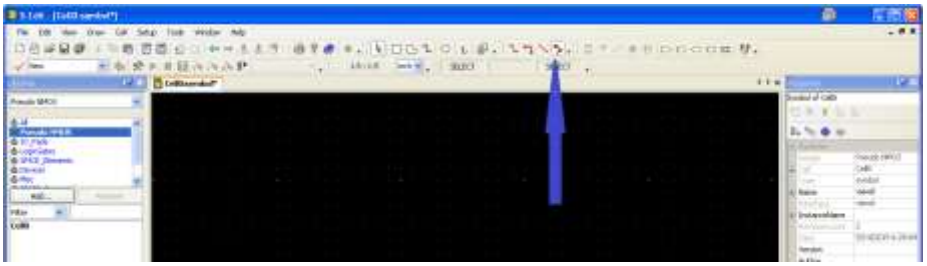


Now user-defined symbol:

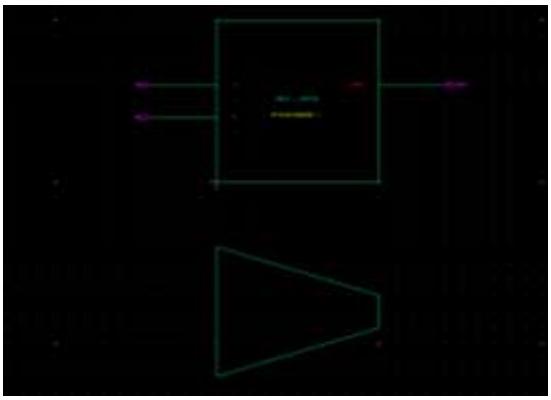
1) Click on path



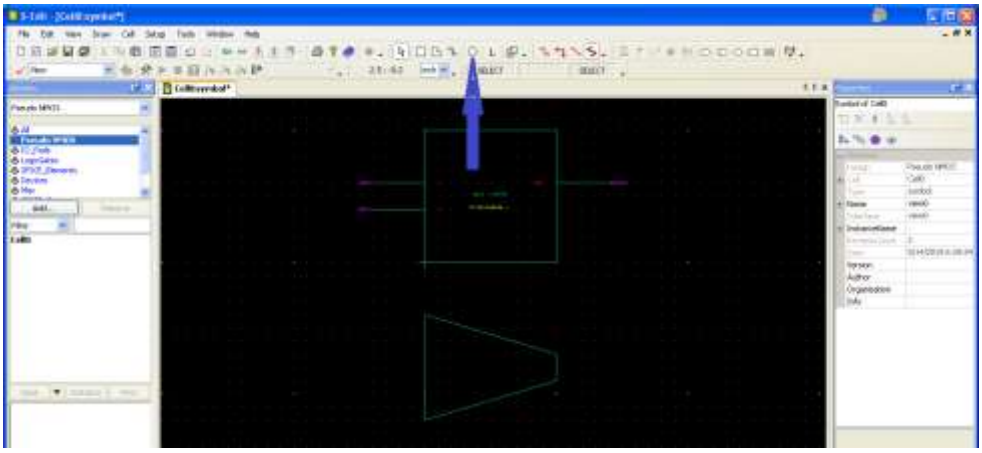
2) Now click on all angle(to draw line at any angle. There are other option as well e.g. draw line at 90 degree angle)

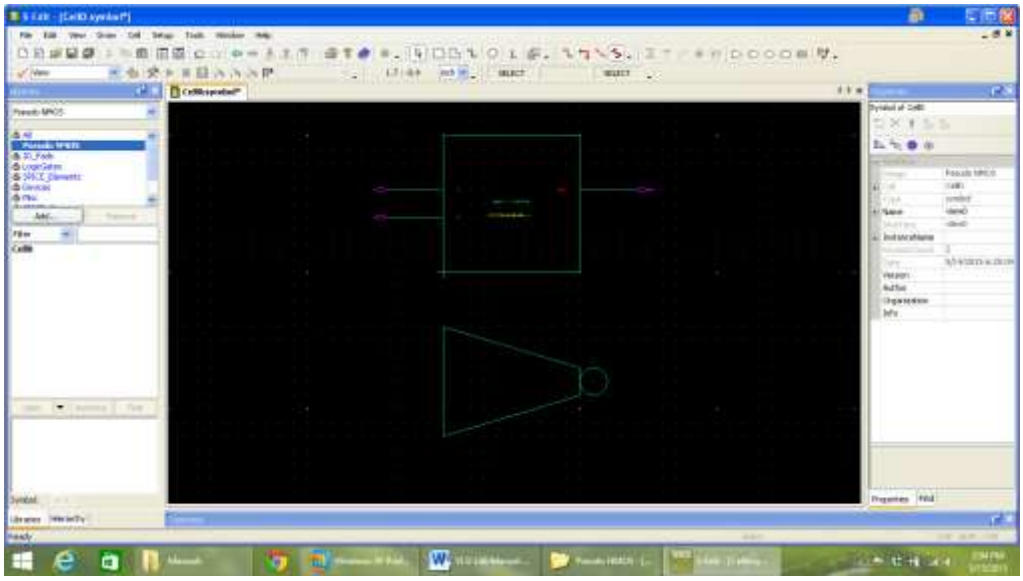


3) Now draw any sybol shape of your choice. I,ll darw NAND gate.

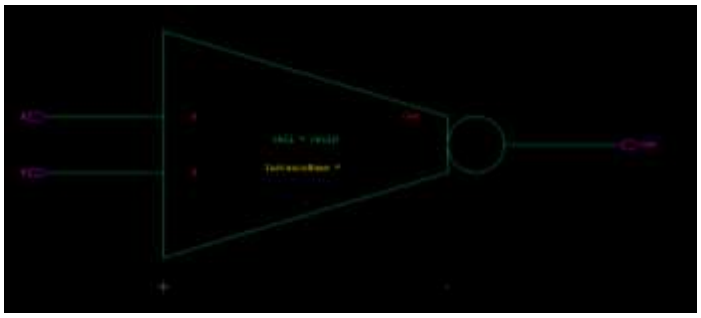


4) Now placing circle(not). Click on circle symbol available at toolbar.

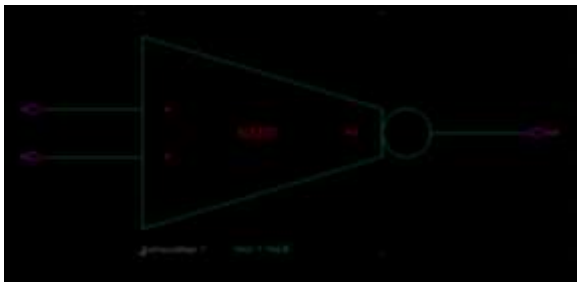




5) Delete automatically generated symbol and place new symbol between input/output ports



6) Type name of symbol by clicking on Label.



5. Task:

Do the following tasks for **(i)** 2 inputs XOR, **(ii)** 2 inputs XNOR, **(iii)** 4 inputs NAND, **(iv)** 6 inputs NOR Gate, and **(v)** a full adder circuit on S-Edit

1) Schematic Design and testing

2) Symbol generation.

Submission Declaration by the Student:

In submitting this lab write-up to the Lab Engineer/Instructor, I hereby declare that:

- ☐ I have performed all the practical work myself
- ☐ I have noted down actual measurements in this write up from my own working
- ☐ I have written un-plagiarized answers to various questions
- ☐
- ☐ I have/have not obtained the desired objectives of the lab.

Reasons of not obtaining objectives (if applicable):

_____

_____

_____

_____
Student's signature and Date

Student Evaluation by the Lab Engineer:

The Lab Engineer can separate this page from the writeup and keep it for his/her own record. It must be signed by the student with date on it.

- ☐ **Lab Work:** objectives achieved (correctness of measurements, calculations, answers to questions posed, conclusion)
  _____/30
- ☐ **Lab Writeup:** Neatness, appropriateness, intime submission
  _____/10
- ☐ **Troubleshooting:** Were the student able to troubleshoot his/her work when it was purposedly changed?
  _____/10
- ☐ **TOTAL:**
  _____/50

Feedback on student behaviour:

Encircle your choice. -2 means poorest/worst/extremely inadequate/irrevlevant, 0 gives an average score, and +2 means best/most relevant/most adequate.

- ☐ Did the student join the lab at the start/remained in lab? -2 -1 0 1 2
- ☐ Did the student remain focused on his/her work during lab? -2 -1 0 1 2
- ☐ Rate student's behaviour with fellows/staff/Lab Engineer? -2 -1 0 1 2
- ☐ Did the student cause any distraction during the Lab? -2 -1 0 1 2

- ☐ Was the student found in any sort of plagiarism? -2 -1 0 1 2

Additional comments (if any) by the Lab Engineer:

_____

_____

_____

_____

_____
Lab Engineer's signature and Date

Student's feedback: [Separate this page; fill it; drop in the Drop Box.]

- ☐ Providing feedback for every lab session is optional. No feedback means you are satisified
- ☐ The Lab Committee will consider only duly filled forms submitted within one week after the lab
- ☐ This feedabck is for LAB session:
- ☐ LAB Number: _____,
- ☐ Date: _____
- ☐ General (to provide feedback on a persistent practice/ocurrence in LABs).
- ☐ Your current CGPA is in the range 4.00 to 3.00/2.99 to 2.00/1.99 to 1.00/0.99 to 0.00

This feedback is:

- ☐ For a Particular
- ☐ Who conducted the LAB?

  _____
- ☐ Actual Start time: _____
- ☐ Total Duration of Lab: _____
- ☐ Instruction Duration: _____
- ☐ Practical Duration: _____
- ☐ LAB writeup available before LAB? Yes/No with the Photocopier/in LAB/in SLATE
- ☐ Had the theory related to lab been covered in theory class? Yes/No

Encircle your choice. -2 means poorest/worst/extremely inadequate/irrevlevant, 0 gives an average score, and +2 means best/most relevant/most adequate.

Instruction Session	Was duration of instruction session adequate?	-2	-1	0	+1	+2
	How much did you understand about the practical?	-2	-1	0	+1	+2
	How much content was irrelevant to the practical?	-2	-1	0	+1	+2
	Did the instructor allowed Q/A and discussion?	-2	-1	0	+1	+2
Practical	Did you get sufficient time for practical?	-2	-1	0	+1	+2
Lab Engineer	Presence in lab at all time?	-2	-1	0	+1	+2
	Ability to convey?	-2	-1	0	+1	+2
	Readiness to help during practical?	-2	-1	0	+1	+2
	Readiness to discuss theoretical aspects?	-2	-1	0	+1	+2
	Helps in troubleshooting?	-2	-1	0	+1	+2
	Guides hows & whys of troubleshooting?	-2	-1	0	+1	+2
Staff	How friendly was the lab staff?	-2	-1	0	+1	+2
	Presence of staff throughout the lab session?	-2	-1	0	+1	+2
	Impact of availability of staff on your practical?	-2	-1	0	+1	+2
Equipment	Performance of Electronic Instruments?	-2	-1	0	+1	+2
	Performance of Breadboard/experiment kit?	-2	-1	0	+1	+2
	Performance of circuit components esp. ICs?	-2	-1	0	+1	+2
Overall	Your overall rating for the whole lab session?	-2	-1	0	+1	+2

Other comments:

_____

_____

_____