

M.Sc. 3rd Semester Examination, 2024

ELECTRONICS

(VLSI Lab)

(Practical)

PAPER – ELC-396

Full Marks : 50

Time : 3 hours

Answer any **one** question selecting it by
lucky draw

The questions are of equal value

1. Draw a schematic diagram of a NAND gate by using LT SPICE. Give the input and output waveforms of the circuit.
2. Draw a schematic diagram of a NOR gate by using LT SPICE. Give the input and output waveforms of the circuit.

3. Draw a schematic diagram of a $y = \overline{(AB + C)}$ by using LT SPICE. Give the input and output waveforms of the circuit.
4. Draw a schematic diagram of a CMOS inverter circuit by using LT SPICE. Give the input and output waveforms of the circuit.
5. Draw layout of a NAND gate using Layout software. Obtain input and output waveform.
6. Draw layout of a OR gate using Microwind software. Give input and output waveforms.
7. Draw layout of a CMOS inverter using Microwind software. Give input and output waveform.
8. Write verilog code for half adder circuit. Draw input and output waveform.
9. Write verilog code for full adder circuit. Draw input and output waveform.

10. Write verilog code for 4 : 1 MUX. Draw input and output waveform.
11. Write verilog code for SR flip-flop. Give input and output waveform.
12. Write verilog code for 2-bit up counter. Give input and output waveform.

Marks Distribution

Program	– 10 Marks
Execution	– 15 Marks
Results	– 10 Marks
Viva-voce	– 10 Marks
Laboratory Note Book	– 05 Marks
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Total :	– 50 Marks

