

M.Sc. 3rd Semester Examination, 2019

ELECTRONICS

(*VLSI Lab.*)

(Practical)

PAPER — ELC-305

Full Marks : 50

Time : 3 hours

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

1. Obtain the transient response of CMOS inverter using SPICE and show the result. (Data Supplied)
2. Using SPICE software simulate a CMOS inverter. Obtain the transfer characteristics for increasing values of β_n/β_p . Show the variation of transfer characteristics of CMOS inverter for increasing values of β_n/β_p .

(Turn Over)

3. Implement $y = \overline{AB + C}$ using SPICE and Show the result.
4. Write a verify program for MOD 6 synchronous counter and verify the result.
5. Write a verify program for J-K flip flop and show the input-output waveform.
6. Write a verify program for 8 : 1 MUX and verify its result.
7. Write a verify program for full adder circuit and verify its result.
8. Write a verify program for X-OR gate and verify the result.
9. Design layout of two input CMOS NAND gate.

10. Design layout of CMOS NOR gate using layout tool.

Distribution of Marks

Program	:	10 Marks
Execution	:	10 Marks
Result	:	15 Marks
Viva-Voce	:	10 Marks
Laboratory Note Book	:	05 Marks
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Total	:	50 Marks