

K. S. SCHOOL OF ENGINEERING AND MANAGEMENT

Department of Computer Science and Engineering

Analog and Digital Electronics Laboratory

LIST OF EXPERIMENTS

PART A (Analog Electronic Circuits)

1. Design an astable multivibrator circuit for three cases of duty cycle (50%, <50% and >50%) using NE 555 timer IC. Simulate the same for any one duty cycle.
2. Using ua 741 Opamp, design a 1 kHz Relaxation Oscillator with 50% duty cycle and simulate the same.
3. Using ua 741 opamp, design a window comparator for any given UTP and LTP and simulate the same.

PART B (Digital Electronic Circuits)

4. Design and implement Half adder, Full Adder, Half Subtractor, Full Subtractor using basic gates. And implement the same in HDL.
5. Given a 4-variable logic expression, simplify it using appropriate technique and realize the simplified logic expression using 8:1 multiplexer IC. And implement the same in HDL.
6. Realize a J-K Master / Slave Flip-Flop using NAND gates and verify its truth table and implement the same in HDL.
7. Design and implement code converter I) Binary to Gray (II) Gray to Binary Code using basic gates.
8. Design and implement a mod-n ($n < 8$) synchronous up counter using J-K Flip-Flop ICs and demonstrate its working.
9. Design and implement an asynchronous counter using decade counter IC to count up from 0 to n ($n \leq 9$) and demonstrate on 7-segment display (using IC-7447)





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1

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