170050068 170050074 170050083 170050093 170050102

Assignment-1 (CS254) by **THE DESIGNERS**

COMPONENTS:

Full Adder, 7-bit Full Adder,4-bit Adder, 7-bit Subtractor, 4-bit Multiplier, 4-bit Square.

DESCRIPTION:

Ganit makes use of the components specified above.

- *Input: two 7-bit binary strings (A,B) and two 1-bit selectors(S1,S2).*
- *Output: 8-bit and 12-bit binary strings ('C' for Binary and 'BCD' for Binary Code Decimal).*

S1 & S2 = 00 => Add, S1 & S2 = 01 => Sub, S1 & S2 = 10 => Mult and S1 & S2 = 11 => Square.

GATE LEVEL DESCRIPTION:

Full adder : 2 XOR, 2 AND, 1 OR Gates (total = 5 gates)

4-bit adder : 8 XOR, 8 AND, 4 OR Gates (total = 20 gates)

7-bit adder : 14 XOR, 14 AND, 7 OR Gates (total = 35 gates)

7-bit subtractor : two 7-bit adders + 9 NOT gates + 2 AND gates + 1 OR gate (total = 82 gates)

Single decimal digit multiplier : three 4-bit adders + 16 AND gates (total = 76 gates)

Ganit : two 7-bit adders + 41 AND gates + 3 OR gates + 3 NOT gates + six 4-bit adders (total = 237 gates)

***WAVEFORM OF GANIT*:**