DEMONSTRATION OF UNIVERSAL GATES
RELIZATION OF BASIC GATES USING NAND GATES

Aim: to implement AND, OR, NOT gates using NAND Gates.

Objectives: To study te design and implementation of logic gates using universal gates.

Components: Breed board | kit, 7400, 74082

Theory.

a) An OR gate is a logic circuit with 2 or more inputs and one output. the output of an OR gate is low only when all of its inputs are low. For all other possible input combinations te output is high.

b) The output of an AND gate is high only when all of it's inputs are in high state. In all other cases, te output is low

c) A not gate is a one-output/one-input gate. whose output is always te complement of te input. that is a low input produces a high output & vice versa

d) The output of a NOR gate is a logical "1" when all it's inputs are logic "0" for all other input combination te output is logic "0"

e) The output of a NAND gate is a logic "0" when all it's inputs are a logic "1" for all input combination te output is a logic "1"

Procedure

a) test all te ICs manually / using IC teaster

b) connect vcc and te ground

c) connect te appropriate pins at te input & output LEDs and switches.
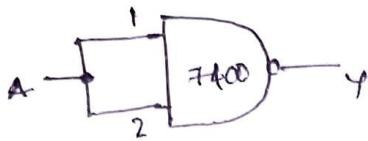
d) verify te truth table with respect to te clock.

Result

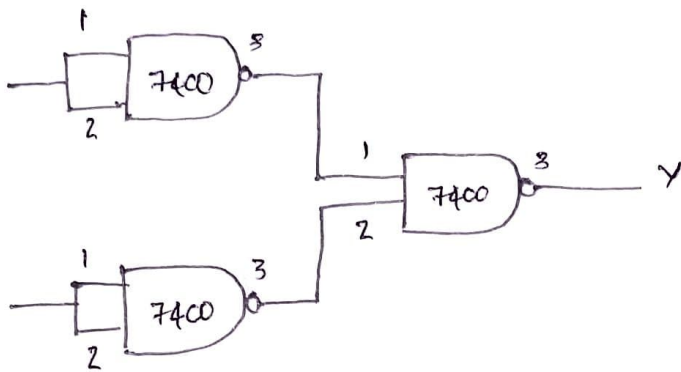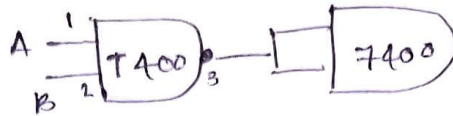Different logic gates are constructed and teir truth tables one verified.

CIRCUIT DIAGRAMS

Realization of gates using NAND

NOT gate

AND GATE

NOT gate circuits