EXP NO: 2

GATES USING IC

Aim: Verify te logic behaviour of various
   IC gates 7408, 7432, 7404, 7400.

Objectives: * to study te working of logic
   gates, (OR, AND, NOT, NOR, NAND, XOR)
   using IC and verify truth tables.

Components: Bread board / kit, 7408, 7432, 7404,
   7400, 7402, 7486

Theory

a) An OR gate is a logic circuit with 2 or more
   inputs and one output. The output of an OR
   is low only when all of it's inputs are low
   for all oter 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 te high
   state. In all oter cases te output is
   low.

c) A NOT gate is a one input / one output
   logic circuit whoes output is always
   te compliment of te input.
      that is a low input produces high
   output and viceversa.

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

e) The output of a NAND Gate is a logic '0'
   when all it's inputs are logic '1'
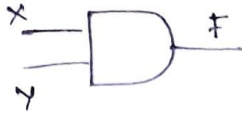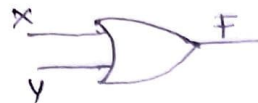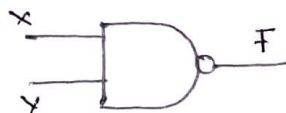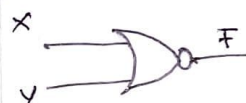   for all oter input combinations te
   output is a logic '1'.

Procedure

a) Test all the IC's manually with IC tester
b) Connect Vcc and the ground
c) Connect the appropriate pins to the input and output LED's and switches.
d) verify the truth table with respect to the clock.

Result

Different logic gates and thir truth table are verified.

CIRCUITS AND TRUTH TABLES

Name	Graphic symbol	Algebraic function	Truth table
AND		$F = x \cdot y$	x Y F 0 0 0 0 1 0 1 0 0 1 1 1
OR		$F = x + y$	x y F 0 0 0 0 1 1 1 0 1 1 1 1
Not		$F = x'$	x F 0 1 1 0
NAND		$F = (x \cdot y)'$	x y F 0 0 1 0 1 0 1 0 0 1 1 0
NOR		$F = (x+y)'$	x y F 0 0 1 0 1 0 1 0 0 1 1 0
XOR		$F = xy' + x'y$ $= x + y$	x y F 0 0 0 0 1 1 1 0 1 1 1 0