## Experiment#4

**Title:-**

Application of logic gates "Implementation of distributive law"

**Objective:-**

- **Distributive law**
  - A (B + C) = AB + AC
  - (A + B)(C + D) = AC + AD + BC + BD
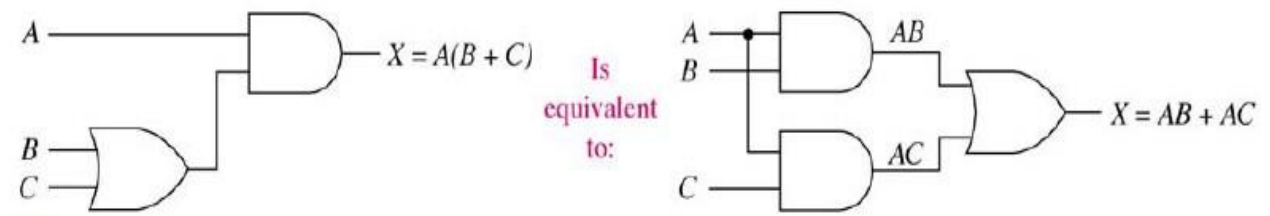
**Parts required:-**

- IC Type 7408 Quadruple 2-input AND gates
- IC Type 7432 Quadruple 2-input OR gates

**Equipment required:-**

- Trainer/ proto board
- Wire cutter
- Patch Cord
- Voltmeter

**Theory:-**

**Distributive law**

**Procedure:-**

(a) Place the IC of required on the bread board. Be sure that it is seated firmly, straddling the notch in the socket, and that none of the pins are bent
(b) connect Vcc=5V to pin 14 and Ground to pin 7
(c) Pin lay out of the IC is given in Annex connect one of gates. Connect inputs(pin1&2)to SW1 and SW2 and output to the LED
(d) Switch ON the circuit and complete following truth tables for both cases for distributive law

$$A (B+C) = AB+AC$$

| A | B | C | B+C | A(B+C) | AB | AC | AB+AC |
|---|---|---|-----|--------|----|----|-------|
| 0 | 0 | 0 | | | | | |
| 0 | 0 | 1 | | | | | |
| 0 | 1 | 0 | | | | | |
| 0 | 1 | 1 | | | | | |
| 1 | 0 | 0 | | | | | |
| 1 | 0 | 1 | | | | | |
| 1 | 1 | 0 | | | | | |
| 1 | 1 | 1 | | | | | |

**Question**:- Draw the logic circuit diagrams and describe the connections.