**Aim :** Proving the axioms and theorems of Boolean algebra is the goal of the experiment.

**Conclusion:**

**Experiment #1**

From equation A + A.B = A, it is expected that output will be only depend on A input. B input won’t change the output value. Here is the result table from this experiment;

|  |  |  |
| --- | --- | --- |
|  |  | Output |
| A-B | 0-0 | 0 |
| A-B | 0-1 | 0 |
| A-B | 1-0 | 1 |
| A-B | 1-1 | 1 |

From equation (A+B)\*(A+B') = A, same results are expected and optained.

**Experiment #2**

Dual of the equation A + A.B = A is A.(A+B) = A. Again, it is expected that output will be only depend on A input. Here is the result table from this experiment;

|  |  |  |
| --- | --- | --- |
|  |  | Output |
| A-B | 0-0 | 0 |
| A-B | 0-1 | 0 |
| A-B | 1-0 | 1 |
| A-B | 1-1 | 1 |

**Experiment #3**

F’ = X’ . (Y’ + Z’). 1 value from X input will make F automatically 0. Otherwise F output will be depend on Y and Z values. Here is the result table from this experiment;

|  |  |  |  |
| --- | --- | --- | --- |
| X | Y | Z | F’ |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 0 |

**Experiment #4**

F(A,B,C)=A'.B'.D'+B.C'.D'+AB'D'+BC'D+BCD' is reduced to F(A,B,C) = D’ + B’C’. It shows that F is not effected by A input. Here is the truth table from this equaiton;

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | F |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 0 |