BOOLEAN LOGIC

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I. INTRODUCTION

1) problem: The boolean logic realized by the logic circuit is

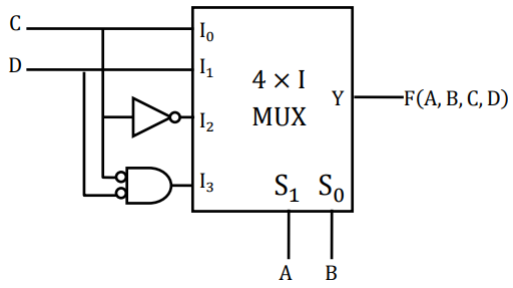

Fig. 1

II. COMPONENTS

A. aurdino

B. bread board

C. jumper wires - 10

D. 7 segment display

E. resisitor

F. 7447 IC

III. SOLUTION

The equations to be solved by using the boolean logic

A) $F = \sum(0, 1, 3, 5, 9, 10, 14)$

using boolean logic expression the equation expressed as

F = ABD + ACD + BCD + ACD

B) $F = \sum(2, 3, 5, 7, 8, 12, 13)$

using boolean expression the equation expressed as

F =ABC + ABD + ABC + ACD

using boolean expression the equation expressed as

C) $F = \sum(1, 2, 4, 5, 11, 14, 15)$

using boolean expression the equation expressed as

F = ABC + ACD + ABC + ACD

D) $F = \sum(2, 3, 5, 7, 8, 9, 12)$

using boolean expression the equation expressed as

F = ABC + ABD + ABC + ABCD

A	B	C	D	F
0	0	0	0	0
0	1	0	0	0
1	0	0	0	1
1	1	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	1
1	0	0	1	0
1	0	1	0	1
1	0	1	1	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

TABLE I: Truth Table

solution of the logic circuit is

$F = \sum(2, 3, 5, 7, 8, 9, 12)$

F = ABC+ ABD + ABC+ ABCD