

Assignment-Gate 2011 EC Q20

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IITH - Future Wireless Communication

Contents

- 1 Components
- 2 Connections
- 3 Problem
- 4 Truth table
- 5 Karnaugh-map
- 6 Code Link

1 Components

Component	Value	Quantity
Resistor	220 ohm	1
Arduino	UNO	1
Decoder	7447	1
Display		1
Bread board		1
Jumper wires	M-M	15

Table 1:

2 Connections

Make connections between Seven segment and 7447 IC as per table3.

7447	a'	b'	c'	d'	e'	f'	g'
Display	a	b	c	d	e	f	g

Table 2:

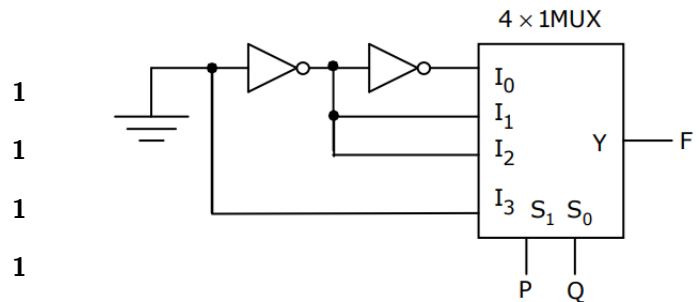
Make connections between Arduino and 7447 IC as per table4.

Arduino	2	3	4	5
7447	A	B	C	D

Table 3:

3 Problem

The logic function implemented by the circuit given below is that of an XOR Gate



$$F = PQ' + P'Q$$

4 Truth table

P	Q	F
0	0	0
0	1	1
1	0	1
1	1	0

Table 4:

5 Karnaugh-map

		Q	
		0	1
P	0	0	1
	1	1	0

$$F = PQ' + P'Q$$

6 Code Link

Execute the following program to realize the Boolean logic for the given circuit

https://github.com/nikhilnair90/FWC-2/blob/5c950fc2f1024337a2e919db7235bcad72a67800/Assignment%20Ide/Codes/gate2011_EC-Q20.cpp