ARM ASSIGNMENT

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IITH - Future Wireless Communication

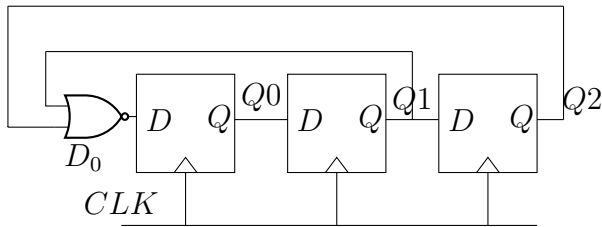CONTENTS

I. QUESTION

The digital circuit shown _____

II. ANSWER

The above question can be solved by using Truth Table and karnaugh-map.

A. *Truth Table*

Present State			Flip-Flop i/p			Next State		
Q_0	Q_1	Q_2	D_0	D_1	D_2	Q_0'	Q_1'	Q_2'
0	0	0	1	0	0	1	0	0
1	0	0	1	1	0	1	1	0
1	1	0	0	1	1	0	1	1
0	1	1	0	0	1	0	0	1
0	0	1	0	0	0	0	0	0

Therefore, given circuit is Divide by 5 circuit.

B. *K-Map Implentation*

$$Q_1 Q_2$$

	00	01	11	10
0	1	0	0	0
1	1	0	0	0

Q_0

$$D_0 = \overline{Q}_1 + \overline{Q}_2$$

$$Q_1 Q_2$$

	00	01	11	10
0	0	0	0	0
1	1	0	0	1

Q_0

$$D_1 = Q_0$$

$$Q_1 Q_2$$

	00	01	11	10
0	0	0	1	0
1	0	0	0	1

Q_0

$$D_2 = Q_1$$

III. COMPONENTS

Components	Values	Quantity
VAMAN		1
Jumper Wires	M-M	25
Breadboard		1
LED		4
Resistor		
Flip Flop	7474	2

IV. IMPLEMENTATION

	INPUT			OUTPUT			CLOCK		5V			
	Q0	Q1	Q2	Q0'	Q1'	Q2'						
VAMAN(pins)	2	3	4	18	21	22	5					
7474	5	9		2	12		CLK1	CLK2	1	4	10	13
7474			9			12	CLK1	CLK2	1	4	10	13

Connections

Procedure

1. Connect the circuit as per the above table.
2. Connect LEDs to the output pins of the VA-MAN to see output.
3. Execute the circuit using the below code.

https://github.com/Chakali23/FWC
/tree/main/IDE/arm(VAMAN)