

"Assignment: 2"

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SP-21-110

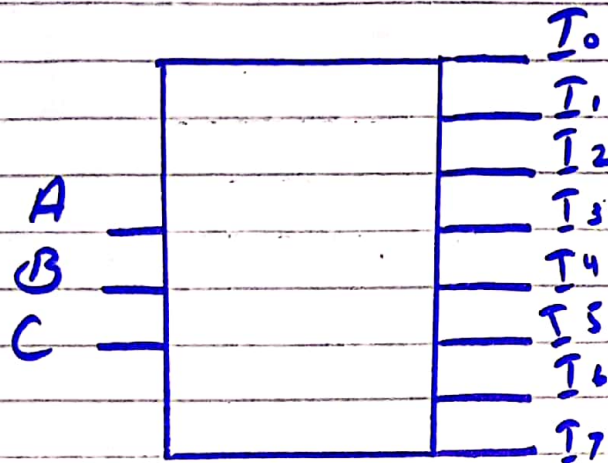
Digital Logic Design

Submitted to:-

Sir Hammad

"Question 1:-"

Design internal circuit:-

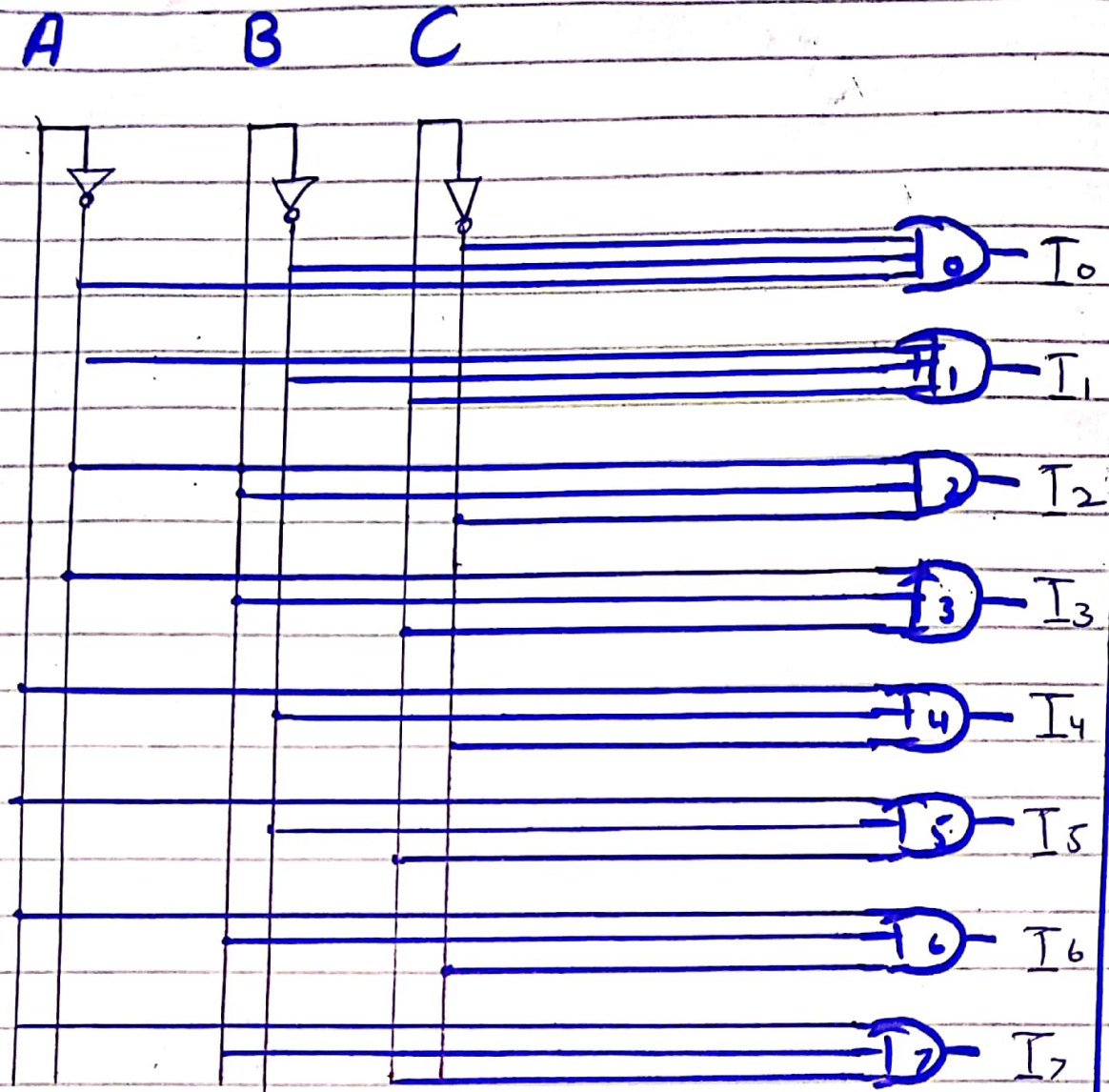


A	B	C	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
0	0	0	1	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0
0	1	0	0	0	1	0	0	0	0	0
0	1	1	0	0	0	1	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0
1	0	1	0	0	0	0	0	1	0	0
1	1	0	0	0	0	0	0	0	1	0
1	1	1	0	0	0	0	0	0	0	1

Input

Output

Circuit Diagram:-



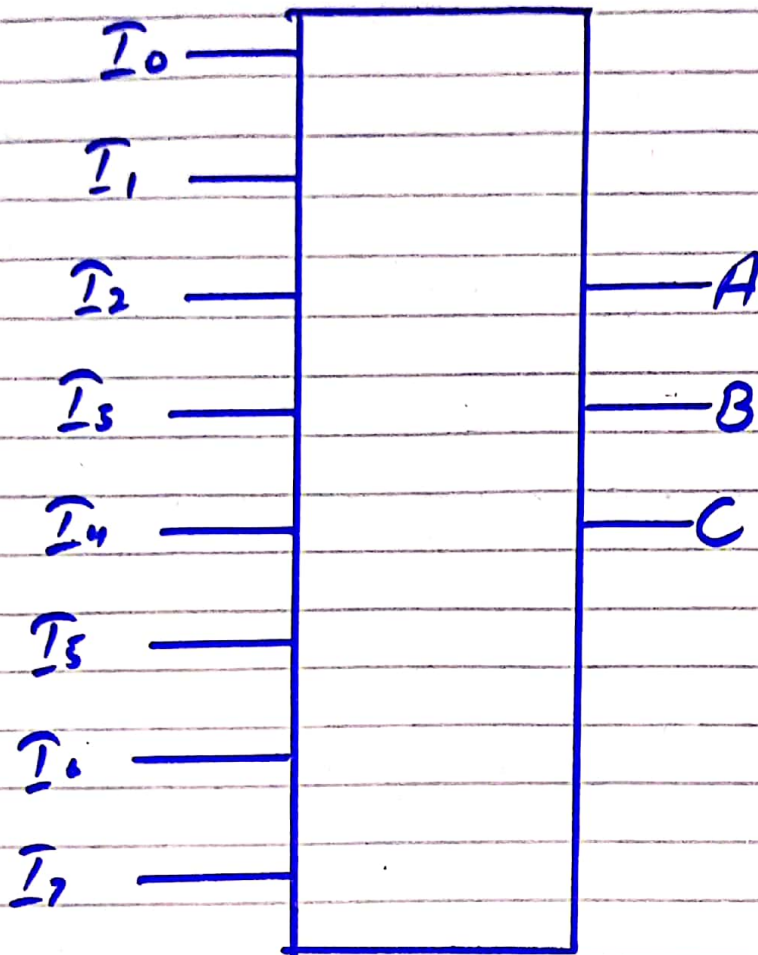
For example if we want to take I_4 as High priority then:-

$$I_4 = A \bar{B} \bar{C}$$

1 0 0

" Question 2 "

Draw Internal Circuit:-



I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	A	B	C
1	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	1	0
0	0	0	1	0	0	0	0	0	1	1
0	0	0	0	1	0	0	0	1	0	0
0	0	0	0	0	1	0	0	1	0	1
0	0	0	0	0	0	1	0	1	1	0
0	0	0	0	0	0	0	1	1	1	1

Circuit Diagram:-

AS from the Truth Table, we see that the outputs A, B and C give High priority when:-

$$A = T_4 + T_5 + T_6 + T_7$$

$$B = T_2 + T_3 + T_6 + T_7$$

$$C = T_1 + T_3 + T_5 + T_7$$

So by these equations:-

T_1 T_2 T_3 T_4 T_5 T_6 T_7

