Name : S.M. Tasnimul Hasan

ID : 18.02.04.142

Course No : CSE 3110

Course Title : Digital System Design Lab

Section : B (B2)

Group : B2

Date : 29-07-2021

Function Table :

$S2$	$S1$	$S0$	X_i	Y_i	Z_i	Output	Function
0	1	1	A_i	0	0	A_i	Transfer A
0	0	1	A_i	B_i	1	$A_i + B_i + 1$	Add with carry
0	1	0	A_i	1111	0	$A_i - 1$	Decrement A
1	1	0	$A_i \oplus B_i$	0	0	A_i xor B_i	XOR
1	0	0	$A_i + B_i$	0	0	$A_i \mid B_i$	OR

Output Functions :

$$X_i = S_2'A_i + S_2 S_1 S_0' (A_i \oplus B_i) + S_2 S_1' S_0' (A_i + B_i)$$

$$Y_i = S_2' S_1' S_0 B_i + S_2' S_1 S_0'$$

$$Z_i = S_2' S_1' S_0$$

Circuit Diagram :

S_2 S_1 S_0 A_i B_i

X_i

Y_i

Z_i