

Name:..... Student ID ..... Sent by 19/12/2024

The table beside is the truth table for 2-bit addition.

The inputs are the augend,  $A_1 A_0$ , and the addend,  $B_1 B_0$ .

The outputs are the sum  $S_1 S_0$  and the carry  $C_1$ .

Get the remainder of the quotients of the last number in your student ID and 3. Use it to define the outputs  $Y_1$ ,  $Y_2$  and  $Y_3$  for doing homework. For example, if remainder =2, then  $Y_1 = S_0$ ,  $Y_2 = C_0$  and  $Y_3 = S_1$ .

<b>Output</b>	$Y_1$	$Y_2$	$Y_3$
<b>Remainder</b>	$C_1$	$S_1$	$S_0$
1	$S_1$	$S_0$	$C_1$
2	$S_0$	$C_1$	$S_1$

INPUTS				OUTPUTS		
$A_1$	$A_0$	$B_1$	$B_0$	$C_1$	$S_1$	$S_0$
0	0	0	0	0	0	0
0	0	0	1	0	0	1
0	0	1	0	0	1	0
0	0	1	1	0	1	1
0	1	0	0	0	0	1
0	1	0	1	0	1	0
0	1	1	0	0	1	1
0	1	1	1	1	0	0
1	0	0	0	0	1	0
1	0	0	1	0	1	1
1	0	1	0	1	0	0
1	0	1	1	1	0	1
1	1	0	0	0	1	1
1	1	0	1	1	0	0
1	1	1	0	1	0	1
1	1	1	1	1	1	0

1) Use the Boolean Algebra to simplify the equation for

$$Y_1 = \dots$$

2) Use the Karnaugh's Map to minimize the  $Y_2$  and  $Y_3$ .

$$Y_2 = \dots \quad | \quad Y_3 = \dots$$

$\gamma_3 = \dots$