

16/6/12

(Lec no)  
17, 18

# Register Transfer Language and Micro-operations

Z	Y	F <sub>1</sub>	F <sub>2</sub>	→	F <sub>15</sub>	
0	0	0	0		1	$2^n = 2^4$
0	1	0	0		1	
1	0	0	0		1	
1	1	0	1		1	

→ Two register use for Addition:-

To Add B To A :-  $A \leftarrow A+B$

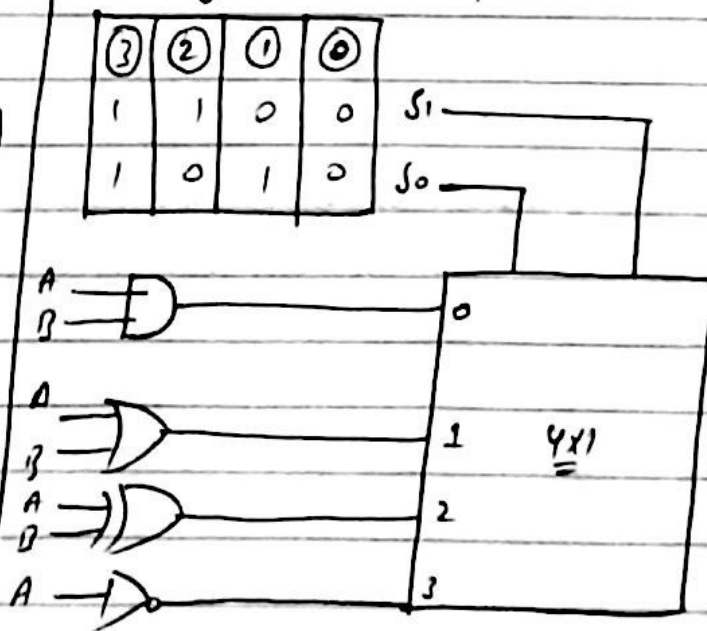
To Add A To B :-  $B \leftarrow A+B$

$A \leftarrow \bar{B}$  : Micro-operation

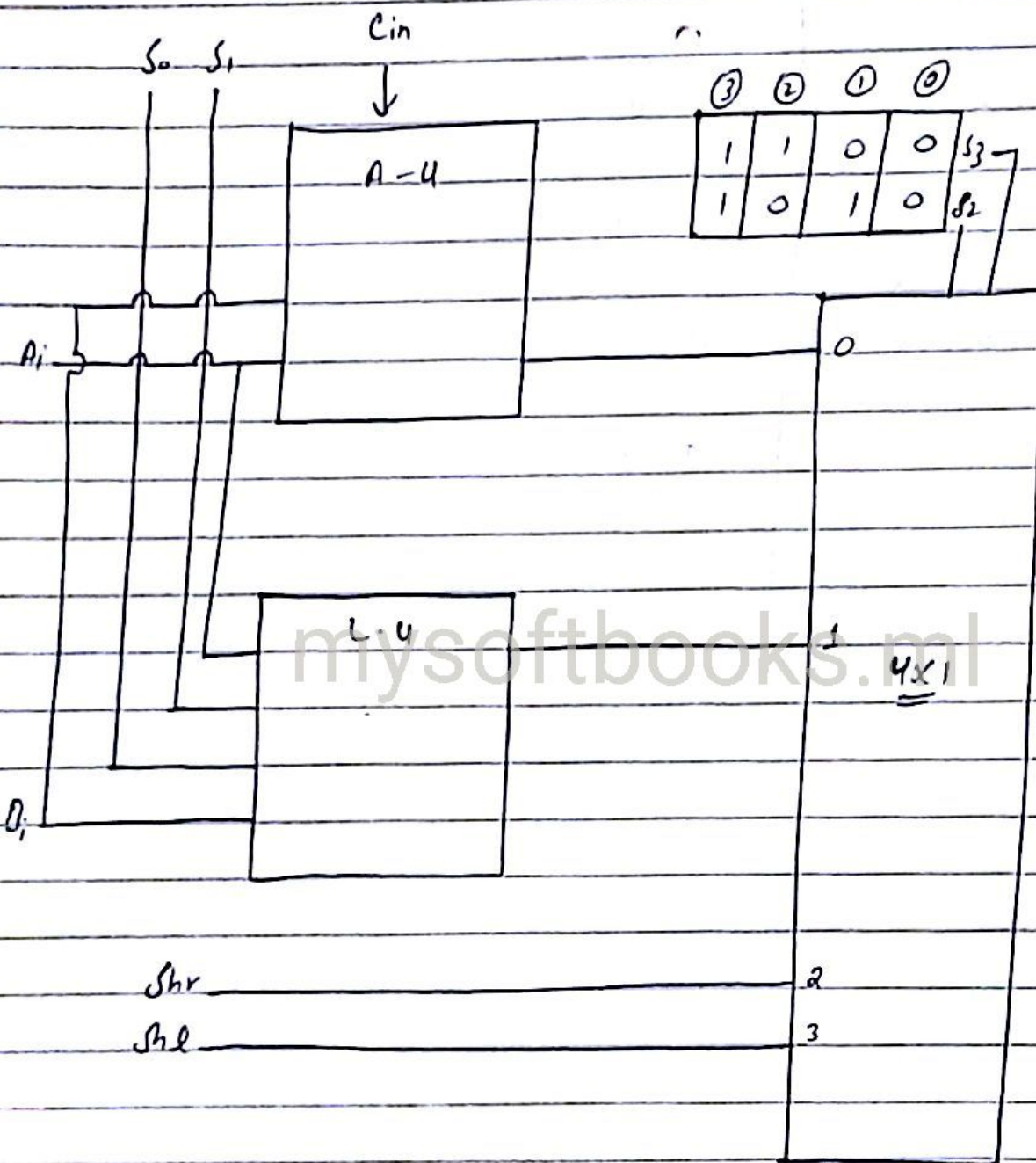
## Logical Unit:-

- i) A and B ( $A \wedge B$ )
- ii) A or B ( $A \vee B$ )
- iii)  $A \oplus B$  (Exclusive)
- iv)  $A'$

## Logical Unit Operation:-



# Arithmetic Shift Logic Unit



Sh r = Shift Right

Sh l = Shift Left

$S_3$	$S_2$	$S_1$	$S_0$	cin	Output
0	0	0	0	0	$A+B+0$
0	0	0	0	1	$A+B+1$
0	0	0	1	0	$A+B+0$
0	1	0	0	X	$A \cap B$
0	1	0	1	X	$A \cup B$
1	0	X	X	X	Sh 8
1	1	X	X	X	Sh 9

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