

CS501 Assignment No. 02 Solution Spring 2013 (06-05-13)

Question No 2: Fill the given table by specifying binary encoded values against each instruction.

SOLUTION:

Instruction	Type	OP-Code	Ra	Rb	Rc	C1	C2	Addressing mode	RTL Description	Condition	Pc Status
ori r2, r4, 9	III	01011 (11)	r2	r4	N/A	9	N/A	Immediate	$R[2] \leftarrow R[4] \vee 9$	N/A	N/A
insg r1, [27]	II	10010 (18)	r1	N/A	N/A	N/A	27	Relative	$R[1] \leftarrow R[1] \oplus 27$ $PC \leftarrow PC + 27$	If $R[1] \neq 0$	$PC \leftarrow PC + 27$
Out 7, R5(30)	II	11001 (25)	R7	R5	N/A	N/A	30	Displacement	$IO[R[5] + 30] \leftarrow R[7]$	N/A	N/A
Load R[6]+99]	III	11101 (29)	R1	R6	N/A	99	N/A	Displacement	$R[1] \leftarrow M[R[6] + 99]$	N/A	N/A
lmi R3, [7]	II	10001 (17)	r3	N/A	N/A	N/A	7	Relative	$R[1] \leftarrow R[3] \oplus 7$ $PC \leftarrow PC + 7$	If $R[3] < 0$	$PC \leftarrow PC + 7$

Q 1:

1) yeh aik subtraction process ha. jis main 56 ki value r2 ki value say subtract ho gi n result r1 main store ho ga.

1) $R[1] \leftarrow R[2] + (-56)$

it is an add instruction but due negative immediate constant in actual subtraction will be carried out.