

## Tut 6. Sol<sup>n</sup> 1.

18	1000
1	1001
⋮	⋮
16	1020

1st instruction: `MOVI Rs, 1`

immediate addressing so,  $R_s \leftarrow 1$ .

so content of  $R_s$  is 1.

2nd instruction: `LOAD Rd, 1000(Rs)`

content of displacement addressing so,  $R_d \leftarrow [1000 + [R_s]]$

$$\Rightarrow R_d \leftarrow [1000 + 1]$$

$$\Rightarrow R_d \leftarrow [1001]$$

$$\Rightarrow R_d \leftarrow 1.$$

3rd instruction: `ADDI Rd, 1000`

immediate addressing so,  $R_d \leftarrow [R_d] + 1000$

$$\Rightarrow R_d \leftarrow 1 + 1000$$

$$\Rightarrow R_d \leftarrow 1001.$$

4th instruction: `STOREI 0(Rd), 20`

is + displacement addressing, then store

$$\text{so } 0 + [R_d] \leftarrow 20$$

$$\Rightarrow 0 + 1001 \leftarrow 20$$

$$\Rightarrow 1001 \leftarrow 20$$

so 20 will be moved to 1001th location.

so option (d) is correct.

## Tut 6. Sol<sup>n</sup> 2.

- a) load immediate 20  $\rightarrow AC \leftarrow 20$ .
- b) load direct 20  $\rightarrow AC \leftarrow [20]$  i.e content of 20 i.e 40.
- c) load indirect 20  $\rightarrow AC \leftarrow [[20]]$  i.e content of 40 i.e 60.
- d) load immediate 30,  $\leftarrow AC \leftarrow 30$ .
- e) load direct 30  $\rightarrow AC \leftarrow [30]$  i.e content of 30 i.e 50.
- f) load indirect 30  $\rightarrow AC \leftarrow [[30]]$  i.e content of 50 i.e 70.