

CO HW9

1. Problem 5-13

XOR $D_0T_4 : DR \leftarrow M[AR]$
 $D_0T_5 : AC \leftarrow AC \oplus DR,$
 $SC \leftarrow 0$

ADN $D_1T_4 : DR \leftarrow M[AR]$
 $D_1T_5 : DR \leftarrow AC,$
 $AC \leftarrow AC + DR$
 $D_1T_6 : M[AR] \leftarrow AC,$
 $AC \leftarrow DR,$
 $SC \leftarrow 0$

SUB $D_2T_4 : DR \leftarrow M[AR]$
 $D_2T_5 : DR \leftarrow AC,$
 $AC \leftarrow DR$
 $D_2T_6 : AC \leftarrow \overline{AC}$
 $D_2T_7 : AC \leftarrow AC + 1$
 $D_2T_8 : AC \leftarrow AC + DR,$
 $SC \leftarrow 0$

XCH

$D_3 T_4 : DR \leftarrow M[AR]$

$D_3 T_5 : AC \leftarrow AC,$
 $AC \leftarrow DR,$
 $SC \leftarrow 0$

SEQ

$D_4 T_4 : DA \leftarrow M[AR]$

$D_4 T_5 : TR \leftarrow AC,$
 $AC \leftarrow AC \oplus DR$

$D_4 T_6 : \text{if}(AC = 0)$

$\text{then}(PC \leftarrow PC + 1),$

$AC \leftarrow TR,$

$SC \leftarrow 0$

BPA

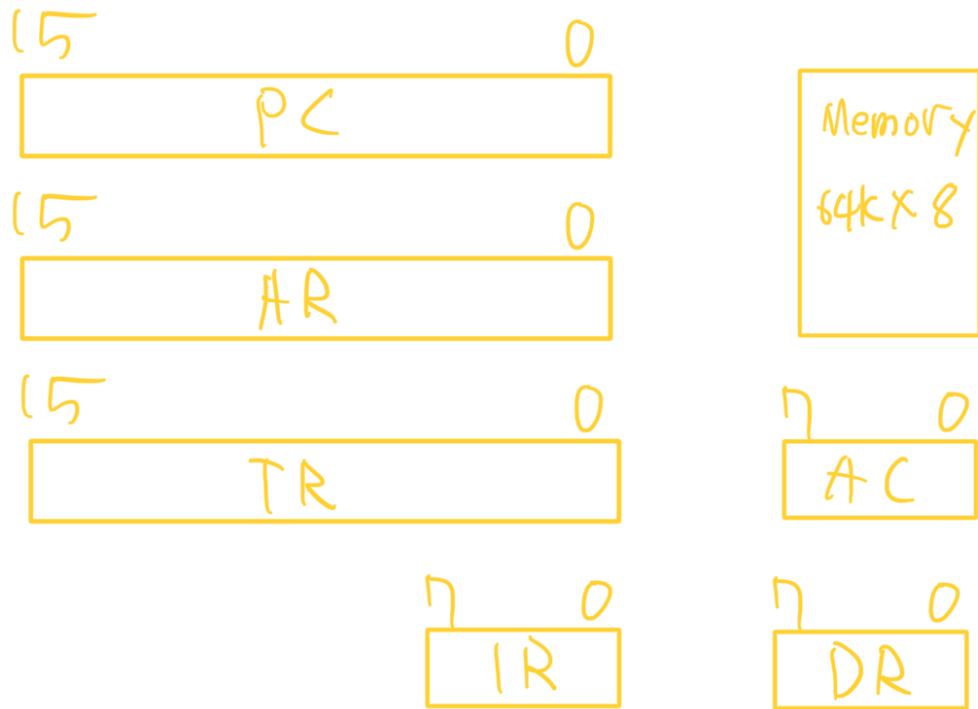
$D_5 T_4 : \text{if}(AC = 0 \wedge AC(15) = 0)$

$\text{then}(PC \leftarrow AR),$

$SC \leftarrow 0$

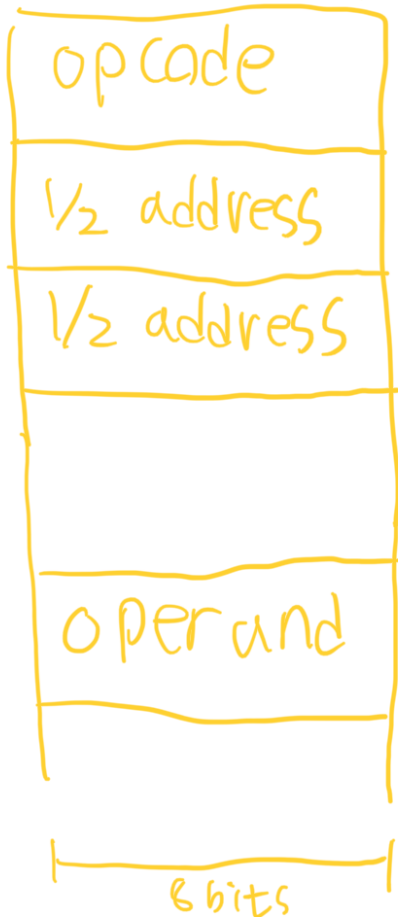
2. Problem 5-16

a



b

8bit Memory



c

$T_0: IR \leftarrow M[PC],$
 $PC \leftarrow PC + 1$

$T_1: AR(0-7) \leftarrow M[PC],$
 $PC \leftarrow PC + 1$

$T_2: AR(8-15) \leftarrow M[PC],$

$PC \leftarrow PC + 1$

$T_3: DR \leftarrow M[AR]$

3. Problem 5-18

a

BUN 2300

b

LOIN

BUN 0 I

//branch indirect to 0