

8.1

last in, first out(FIFO)

8.7

```
1  ;R3 : the size of element
2  ;R4 : the address of the head of element
3
4  POP
5  ST R1, Save1
6  ST R2, Save2
7  LD R1, EMPTY
8  ADD R2, R6, R1
9  BRz fail_exit ; stack is empty
10
11 LOOP_POP ; R3 times
12 LDR R1, R6, #0
13 STR R1, R4, #0
14 ADD R6, R6, #1
15 ADD R4, R4, #-1
16 ADD R3, R3, #-1
17 BRp LOOP_POP
18 BRnzp success_exit
19
20 PUSH
21 ST R1, Save1
22 ST R2, Save2
23 LD R1, FULL
24 ADD R2, R6, R1
25 BRz fail_exit ; stack is full
26
27 LOOP_PUSH ; R3 times
28 LDR R1, R4, #0
29 STR R1, R6, #0
30 ADD R6, R6, #-1
31 ADD R4, R4, #1
32 ADD R3, R3, #-1
33 BRp LOOP_PUSH
34
35 success_exit
36 LD R2, Save2
37 LD R1, Save1
38 AND R5, R5, #0
39 RET
40
41 fail_exit
42 LD R2, Save2
43 LD R1, Save1
44 ADD R5, R5, #1
45 AND R5, R5, #0
46 RET
```

```

47
48 EMPTY .FILL xC000 ; EMPTY contains -x4000
49 FULL .FILL xC005 ; FULL contains -x3FFB
50 Save1 .FILL x0000
51 Save2 .FILL x0000

```

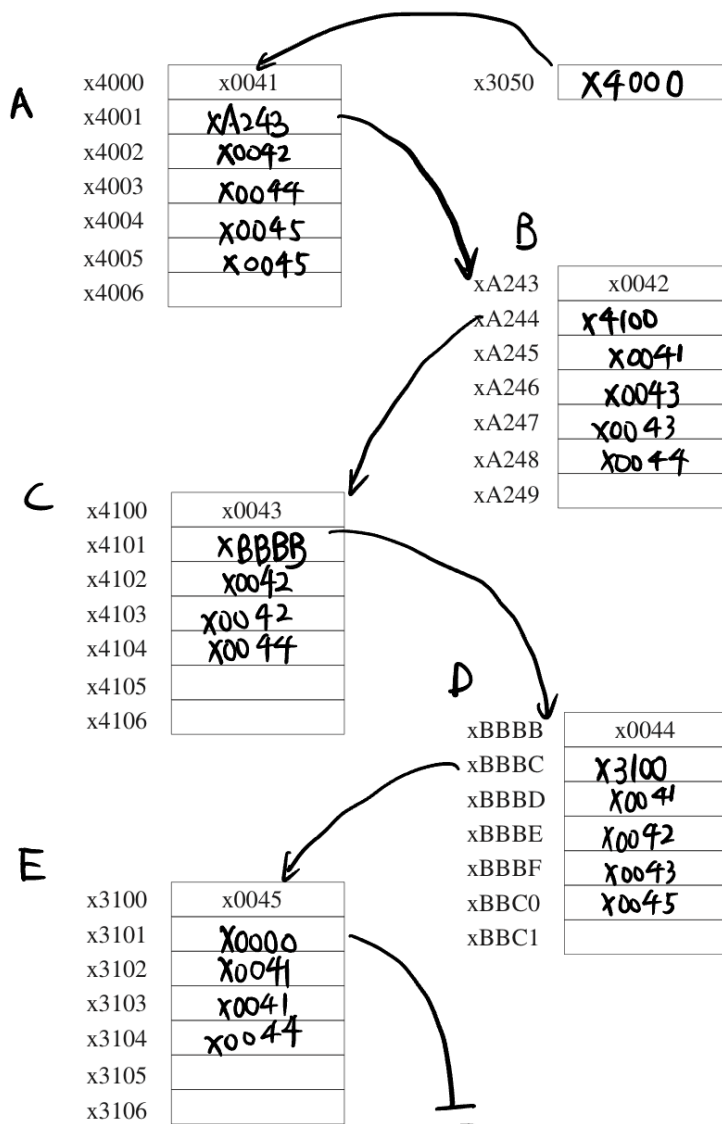
8.8

a.AF

b.after PUSH D.

c.AFM

8.12



30

8.14

a. JSR X

b. LDR R1, R3, #1

c. LDR R2, R4, #1

d. ADD R1, R1, R2

e. ADD R0, R0, R1

f. STR R0, R5, #1

g. BRn LABEL

h. BRn ADDING

i. ADD R2, R2, #0