

Homework07

Chapter8

- **8.1** : LIFO(last in, first out)
- **8.7** :

;R3 CONTAINS THE SIZE OF THE STACK ELEMENT

```
POP      ST  R0,SAVE0
         ST  R1,SAVE1
         ST  R2,SAVE2
         LD  R1,EMPTY
         ADD R2,R6,R1
         BRz FAIL
         ADD R0,R4,#0
         ADD R1,R3,#0
         ADD R5,R6,R3
         ADD R5,R5,#-1
         ADD R6,R6,R3

LOOP1    LDR R2,R5,#0
         STR R2,R0,#0
         ADD R0,R0,#1
         ADD R5,R5,#-1
         ADD R1,R1,#-1
         BRp LOOP1
         BRnzp SUCCESS

PUSH     ST  R0,SAVE0
         ST  R1,SAVE1
         ST  R2,SAVE2
         LD  R1,FULL
         ADD R2,R6,R1
         BRz FAIL
         ADD R0,R4,#0
         ADD R1,R3,#0
         ADD R5,R6,#-1
         NOT R2,R3
         ADD R2,R2,#1
         ADD R6,R6,R2

LOOP2    LDR R2,R0,#0
         STR R2,R5,#0
         ADD R0,R0,#1
         ADD R5,R5,#-1
         ADD R1,R1,#-1
         BRp LOOP2

SUCCESS  LD  R2,SAVE2
         LD  R1,SAVE1
         LD  R0,SAVE0
         AND R5,R5,#0
         RET

FAIL     LD  R2,SAVE2
         LD  R1,SAVE1
         LD  R0,SAVE0
         AND R5,R5,#0
         ADD R5,R5,#1
         RET
```

EMPTY	.FILL	xC000
FULL	.FILL	xC005
SAVE0	.FILL	x0000
SAVE1	.FILL	x0000
SAVE2	.FILL	x0000

- **8.8 :**

- a. A F

- b. After PUSH J or PUSH K

- c. A F M

- **8.12 :**

A

x4000
x4001
x4002
x4003
x4004
x4005
x4006

x0041
xA243
xA243
xBBBB
x3100
x3100
0

x3050

x4000

B

xA243
xA244
xA245
xA246
xA247
xA248
xA249

x0042
x4100
x4000
x4100
x4100
xBBBB
0

C

x4100
x4101
x4102
x4103
x4104
x4105
x4106

x0043
xBBBB
xA243
xA243
xBBBB
0

xBBBB
xBBBB
xBBBB
xBBBB
xBBBB
xBBC0
xBBC1

x0044
x3100
x4000
xA423
x4100
x3100
0

E

x3100
x3101
x3102
x3103
x3104
x3105
x3106

x0045
—
x4000
x4000
xBBBB
0

• 8.14 :

- JSR X
- R1,R3,#1
- R2,R3,#1
- R1,R0

e. ADD R0,R1,R2

f. R5,#1

g. LABEL

h. ADDING

i. R2,R2,#0