

Name: SOLUTIONS

CPE 233 Quiz 6

Modify the scratch pad / stack and register file as a result of executing the following code.

.EQU VALUE = 0xF2

.CSEG

.ORG 0x06

```

6 AND R3, VALUE C=0
7 WSP R5
8 CALL test
9 ST R0, end
A LD R2, (R7)
B BRCC skip
C RET
skip: D PUSH R8
E SEC
F LSL R4, C=1
10 EXOR R1, R30
11 ADDC R0, test
end: 12 BRN end

test: 13 POP R6
      14 POP R7
      15 RET

```

LSL $Rd \leftarrow Rd(6:0) \oplus C$
 $C \leftarrow Rd(7)$

WSP $SP \leftarrow Rd$

1000 0111
 1111 0010

 1000 0010

1001 10010

32
 13
 1

 46

Address	Value
R0	0x32 0x46
R1	0xB9 0xDF
R2	0xD1
R3	0x87 0x82
R4	0x99 0x32
R5	0x04
R6	0x55 0x09
R7	0x01 0xFF
R8	0xFA
R9	
...	
R30	0x66
R31	0x11

Table 2: Register File

Address	Value
0x00	0x07
0x01	0x4C
0x02	0x81
0x03	0x21 0x09
0x04	0xFF
0x05	0x0C
0x06	0x0F
0x07	
0xFD	0x22
0xFE	0x51
0xFF	0x29

Table 3: Scratch Pad Memory

1011 1001
 0110 0110

 1101 1111