1.

test al,00001001b; test bits 0 and 3

```
0 0 1 0 0 1 0 1  <- input value
0 0 0 0 1 0 0 1  <- test value
0 0 0 0 0 0 0 1  <- result: ZF = 0

0 0 1 0 0 1 0 0  <- input value
0 0 0 0 1 0 0 1  <- test value
0 0 0 0 0 0 0 0  <- result: ZF = 1
```

2.

Examples Let's look at three code fragments showing how flags are affected by the CMP instruction. When AX equals 5 and is compared to 10, the Carry flag is set because subtracting 10 from 5 requires a borrow:

```
mov  ax,5
cmp  ax,10                    ; ZF = 0 and CF = 1
```

Comparing 1000 to 1000 sets the Zero flag because subtracting the source from the destination produces zero:

```
mov  ax,1000
mov  cx,1000
cmp  cx,ax                    ; ZF = 1 and CF = 0
```

Comparing 105 to 0 clears both the Zero and Carry flags because subtracting 0 from 105 generates a positive, nonzero value.

```
mov  si,105
cmp  si,0                     ; ZF = 0 and CF = 0
```