Direct Memory Operands

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This topic covers the MOV instruction, applied to direct memory operands and operands with displacements. Click here to view the answers.

Use the following data declarations for Questions 1-4. Assume that the offset of byteVal is 00000000h, and that all code runs in Protected mode.

```
.data
byteVal   BYTE 1,2,3,4
wordVal   WORD 1000h,2000h,3000h,4000h
dwordVal DWORD 12345678h,34567890h
aString   BYTE "ABCDEFG",0
```

1. Indicate whether or not each of the following MOV instructions is valid:

(notate: V = valid, I = invalid)

a.
```
mov ax,byteVal
```
b.
```
mov dx,wordVal
```
c.
```
mov ecx,dwordVal
```
d.
```
mov si,aString
```
e.
```
mov esi,offset aString
```
f.
```
mov al,byteVal
```

2. Indicate whether or not each of the following MOV instructions is valid:

(notate: V = valid, I = invalid)

a.
```
mov eax,offset byteVal
```
b.
```
mov dx,wordVal+2
```
c.
```
mov ecx,offset dwordVal
```
d.
```
mov si,dwordVal
```
e.
```
mov esi,offset aString+2
```
f.
```
mov al,offset byteVal+1
```

3. Indicate the hexadecimal value moved to the destination operand by each of the following MOV instructions:

(If any instruction is invalid, indicate "I" as the answer.)

a.
```
mov eax,offset byteVal
```
b.
```
mov dx,wordVal
mov
```

```
c.  ecx,dwordVal
    mov
d.  esi,offset
    wordVal
    mov
e.  esi,offset
    aString
    mov
f.  al,aString+2
g.  mov edi,offset
    dwordVal
```

4. Indicate the hexadecimal value moved to the destination operand by each of the following MOV instructions:

(If any instruction is invalid, indicate "I" as the answer.)

```
    mov
a.  eax,offset
    byteVal+2
    mov
b.  dx,wordVal+4
    mov
c.  ecx,dwordVal+4
    mov
d.  esi,offset
    wordVal+4
    mov
e.  esi,offset
    aString-1
```

Use the following data declarations for Questions 5-6. Assume that the offset of byteVal is 0000:

```
.data
byteVal      BYTE 3 DUP(0FFh),2,"XY"
wordVal      WORD 2 DUP(6),2
dwordVal     DWORD 8,7,6,5
dwordValSiz  WORD ($ - dwordVal)
ptrByte      DWORD byteVal
ptrWord      DWORD wordVal
```

5. Indicate the hexadecimal value moved to the destination operand by each of the following MOV instructions:

(If any instruction is invalid, indicate "I" as the answer.)

```
a. mov eax,offset wordVal
b. mov dx,wordVal+4
c. mov ecx,dwordVal+4
d. mov si,dwordValSiz
e. mov al,byteVal+4
```

6. Indicate the hexadecimal value moved to the destination operand by each of the following MOV instructions:

(If any instruction is invalid, indicate "I" as the answer.)

```
    mov
a.  ax,dwordVal+2
    mov
b.  dx,wordVal-2
    mov
c.  eax,ptrByte
    mov
d.  esi,ptrWord
    mov
```

e. edi,offset
dwordVal+2