Lab 9: **Indirect and Indexed Operands**

Use the following data declarations. Assume that the offset of byteVal *is 0000:*

.data

byteVal db 1,2,3,4

wordVal dw 1000h,2000h,3000h,4000h

dwordVal dd 12345678h,34567890h

aString db "ABCDEFG",0

pntr dw wordVal

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

(notate: V = valid, I = invalid)

a. mov ax,byteVal[si], V

b. add dx,[cx+wordVal], I

c. mov ecx,[edi+dwordVal], I

d. xchg al,[bx], V

e. mov ax,[bx+4],V

f. mov [bx],[si], I

g. xchg al,byteVal[dx], V

2. Indicate the hexadecimal value of the final destination operand after each of the following code fragments has executed:

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

a. mov si,offset byteVal mov al,[si+1] => al = 02h

b. mov di,6 mov dx,wordVal[di] => dx = 4000h

c. mov bx,4 mov ecx,[bx+dwordVal] => ecx = 34567890h

d. mov si,offset aString
    mov al,byteVal+1
    mov [si],al

=>[si] = 02h

e. mov si,offset
    aString+2
    inc byte ptr[si]

=>[si] = 44h

f. mov bx,pntr
    add word ptr
    [bx],2

=> wordVal[0] = 1002h

g. mov di,offset
    pntr
    mov si,[di]
    mov ax,[si+2]

=> ax = 3000h

3. Indicate the hexadecimal value of the final destination operand after each of the following code fragments has executed:

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

a.   **xchg si,pntr**

      xchg [si],wordVal

=> I

b.   **mov ax,pntr**

      xchg ax,si

      mov dx,[si+4]

=> dx = 2000h

c.   **mov edi,0**

      mov di,pntr

      add edi,8

      mov eax,[edi]

=> eax = 3000h

d.   **mov esi,offset**

      aString

      xchg esi,pntr

      mov dl,[esi]

=> dl = 00h

**e.   mov esi,offset
   aString
   mov dl,[esi+2]**

=> dl = 43h