

Name: KEY

Id#

COE 205, Term 092

Computer Organization & Assembly Programming

Quiz# 5

Date: Monday, May 10, 2010

Q1. Translate the following High level language constructs into assembly language with the minimum number of instructions possible. Assume that all numbers are signed.

(i) if (EAX > EBX || (ECX < 100 && EDX > 20))

EAX = EAX - 2;

else

EDX = EDX + EBX;

CMP EAX, EBX

JG if

CMP ECX, 100

JGE else

CMP EDX, 20

JLE else

if: SUB EAX, 2

JMP endif

else: ADD EDX, EBX

endif:

(ii) for (ESI=1; ESI < ECX; ESI=ESI+2)

EBX = EBX + ESI

MOV ESI, 1

for: CMP ESI, ECX

JGE endfor

ADD EBX, ESI

ADD ESI, 2

JMP for

endfor:

```
(iii) do{  
    Call RaedInt  
    while (EAX< ESI || EAX > EDI)
```

```
do:    Call ReadInt  
        CMP EAX, ESI  
        JL do  
        CMP EAX, EDI  
        JG do
```

```
(iv)  switch(ESI){  
        case '0': EAX=EAX + EBX; break;  
        case '1': EAX=EAX + ECX; break;  
        case '2': EAX=EAX + EDX; break;  
        case '3': EAX=EAX + EDI; break;  
        default: EAX=EAX + EAX;  
    }
```

```
JMPTable DWORD case0, case1, case2, case3
```

```
    SUB ESI, '0'  
    CMP ESI, 3  
    JG default  
    JMP JMPTable[ESI*4]
```

```
case0: ADD EAX, EBX  
        JMP endswitch  
case1: ADD EAX, ECX  
        JMP endswitch  
case2: ADD EAX, EDX  
        JMP endswitch  
case3: ADD EAX, EDI  
        JMP endswitch  
default: ADD EAX, EAX  
endswitch:
```