**Assignment# 01**

**Solution**

(Marks: 12, Weight: 2)

**Q1. Show the values of AX, BX, ZF, OF, SF, AF, PF and CF for all executable instructions.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Instructions** | **AX** | **BX** | **ZF** | **OF** | **SF** | **AF** | **PF** | **CF** |
| [org 0x0100] |  |  |  |  |  |  |  |  |
| mov al,0x80 | 00 80 | 00 00 | 0 | 0 | 0 | 0 | 0 | 0 |
| mov bl,0x4 | 00 80 | 00 04 | 0 | 0 | 0 | 0 | 0 | 0 |
| add al,bl | 00 84 | 00 04 | 0 | 0 | 1 | 0 | 1 | 0 |
| jg Tag1 | 00 84 | 00 04 | 0 | 0 | 1 | 0 | 1 | 0 |
| ja Tag2 | 00 84 | 00 04 | 0 | 0 | 1 | 0 | 1 | 0 |
| jl Tag3 |  |  |  |  |  |  |  |  |
| jb Tag4 |  |  |  |  |  |  |  |  |
| Tag1: |  |  |  |  |  |  |  |  |
| mov ax,0x1111 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag2: |  |  |  |  |  |  |  |  |
| mov ax,0x2222 | 22 22 | 00 04 | 0 | 0 | 1 | 0 | 1 | 0 |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag3: |  |  |  |  |  |  |  |  |
| mov ax,0x3333 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag4: |  |  |  |  |  |  |  |  |
| mov ax,0x4444 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |

**Q2. Show the values of AX, BX, ZF, OF, SF, AF, PF and CF for all executable instructions.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Instructions** | **AX** | **BX** | **ZF** | **OF** | **SF** | **AF** | **PF** | **CF** |
| [org 0x0100] |  |  |  |  |  |  |  |  |
| mov al,0x80 | 00 80 | 00 00 | 0 | 0 | 0 | 0 | 0 | 0 |
| mov bl,0x4 | 00 80 | 00 04 | 0 | 0 | 0 | 0 | 0 | 0 |
| sub al,bl | 00 7C | 00 04 | 0 | 1 | 0 | 1 | 0 | 0 |
| jg Tag1 | 00 7C | 00 04 | 0 | 1 | 0 | 1 | 0 | 0 |
| ja Tag2 | 00 7C | 00 04 | 0 | 1 | 0 | 1 | 0 | 0 |
| jl Tag3 |  |  |  |  |  |  |  |  |
| jb Tag4 |  |  |  |  |  |  |  |  |
| Tag1: |  |  |  |  |  |  |  |  |
| mov ax,0x1111 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag2: |  |  |  |  |  |  |  |  |
| mov ax,0x2222 | 22 22 | 00 04 | 0 | 1 | 0 | 1 | 0 | 0 |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag3: |  |  |  |  |  |  |  |  |
| mov ax,0x3333 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |
| Tag4: |  |  |  |  |  |  |  |  |
| mov ax,0x4444 |  |  |  |  |  |  |  |  |
| mov ax,0x4c00 |  |  |  |  |  |  |  |  |
| int 0x21 |  |  |  |  |  |  |  |  |