# National University
## of Computer & Emerging Sciences Peshawar Campus

Student Name: __Solution__

Roll No: _____

Program: BCS
Semester: Fall-2022
Time Allowed: 20 Minutes
Course: COAL

Total Marks: 11    Weightage: 4
Date: 22nd September, 2022

## Quiz 01

**Show the values of AX, BX and given flags for all executable instructions.**

| | AX | | BX | | OF | DF | IF | SF | ZF | AF | PF | CF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [org 0x0100] | | | | | | | | | | | | |
| xor ax,ax ;0100 | 00 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| xor bx,bx ;0102 | 00 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| | | | | | | | | | | | | |
| mov ax,[Tag1] ;0104 | 00 | 0B | 00 | 00 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| mov bx,5 ; 0107 | 00 | 0B | 00 | 05 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| add ax,bx ;010A | 00 | 10 | 00 | 05 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| mov [Tag1+2],ax ;010C | 00 | 10 | 00 | 05 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| | | | | | | | | | | | | |
| sub bx,0x8000 ;010F | 00 | 10 | 80 | 05 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| add ax,[Tag1+2] ;0113 | 00 | 20 | 80 | 05 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | |
| mov ax,bx ;0117 | 80 | 05 | 80 | 05 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| mov bx,Tag2 ;0119 | 80 | 05 | 01 | 2B | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| add bx,2 ;011C | 80 | 05 | 01 | 2D | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| | | | | | | | | | | | | |
| mov ax,0x4c00 ;0120 | | | | | | | | | | | | |
| int 0x21 ;0123 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Tag1: dw 11,6,3 ;0125 | | | | | | | | | | | | |
| Tag2: dw 0 ;012B | | | | | | | | | | | | |

(Note: Tag1 shows "10" written above the 6)

```
   0000 0000 0000 1011
 + 0000 0000 0000 0101
 ─────────────────────
   0000 0000 0001 0000
2
   0000 0000 0000 0101
 - 1000 0000 0000 0000
 ─────────────────────
 1 1000 0000 000 0101
```

```
 + 0000 0000 0001 0000
   0000 0000 0001 0000
 ─────────────────────
   0000 0000 0010 0000

   0000 0001 0010 1011
 + 0000 0000 0000 0010
 ─────────────────────
   0000 0001 0010 1101
```