Computer Organization and Assembly Language (COAL)

Class Test: 1 **BS (SE): Fall 2012**
Time: 30 minutes **Instructor:** Abdul Khaliq

Q.1: Consider the following memory area and give the answer of the following questions:- **[3+2]**

74
0AE3:0110 98 32 C0 EB 06 34 02 22-C4 D0 E8 0A 34 00 D2 0A **.2...4."....4...**
41 41 41 41 41 41 41 41 41 41 41 41 41 41 41 41
0AE3:0120 13 96 D0 E0 D0 E0 A2 1E-99 80 3E 20 99 00 75 24 **.....> ..u$**

0AE3:0130 A2 24 99 0A C9 75 1D 0A-C0 74 19 8B 0E 21 96 E3 **.$...u...t...!..**

0AE3:0140 13 B0 1A 06 33 FF 8E 06-00 96 F2 AE 07 75 05 4F **....3.....u.O**
A2 24 99 0A C9
0AE3:0150 89 3E 21 96 BB 06 97 80-3E 13 96 00 74 03 BB 4C **.>!.....>...t..L**

Give output of the following debugger commands in above memory area:-

- **i) E 11B 74**
- **ii) F 120 L 10 '41'**
- **iii) M 130 134 15A**

iv) Which Logical address in the above Memory area is equal to Physical address **0AF7D?**

01E3:0140

Q.2: **[3+3+3]**

For the following instructions, Give the destination contents and the new settings of Carry, Overflow, Sign and Zero Flags. (Suppose that initially all flags are reset)

a) ADD AX, BX
where AX =7132 BX =7000

AX	carry	overflow	Sign	zero
E132	Reset	Set	Set	Reset

b) SUB CX, DX
where CX = 8BCD DX =71AB

CX	carry	overflow	sign	Zero
1A22	Reset	Set	Reset	Reset

c) MOV AX,DX
where AX =3456 DX =ABCD

AX	carry	overflow	sign	Zero
ABCD	Noteffect	Noteffect	Noteffect	Noteffect

Q.3: **[6]**

Consider the two segments, named as Segment 'A' and Segment 'B' in a memory Layout. If segment A begins at address 000C:0000 and ends at address 000C:FFFF, similarly the second segment B begins at address 000E:0000 and ends at address 000E:FFFF.Calculate the common number of locations between these two overlapping segments?

2^{16}- 32

Q.3: Give the short answers of the following questions? **[1x5]**

i) What should be the size of address (in bits) to access a memory of 128 Mega Bytes?

27 bits

ii) What is the binary equivalent form of the decimal number $(-256)_{10}$?

100000000

iii) Which maximum signed value can be stored in a variable of size two bytes?

2^{15}-1

iv) A memory location has physical address 80A32 .In what segment does it have Offset BA32?

7500

vi) After the execution of the following instructions, what will be the new value of IP?

```
AX=09CE  BX=0000  CX=001E  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=0CCE  ES=0CBD  SS=0CCF  CS=0CCD  IP=0007   NV UP EI PL NZ NA PO NC
0CCD:0007 BA0000        MOV     DX,0000
-t
```

IP = 000A