

COE 205 Computer Organization & Assembly Language – Fall 2004

Assignment 2: Registers, Flags, Data Allocation, and Basic I/O

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Due Date: Wednesday, October 13, 2004

Q1. (5 pts) Show the content of the memory allocated in the data segment in hexadecimal for the following directives, and compute the offsets of *I*, *J*, and *L*.

```
.DATA
I   DB   1, 255
    DW   0FAh
    DD   -256
J   DB   '24'
K   EQU  24
L   DW   ?
    DW   OFFSET J
    DB   2 DUP ('*', 3 DUP('!'), '*')
```

Q2. (5 pts) Suppose that you have the following initial register content:

```
AX=F2E9H   BX=0002H   CX=08A0H   DX=F1E0H
```

(i) Show the contents of *AX* and the flags (*O*, *S*, *Z*, *A*, *P*, and *C*) at the end of executing the *ADD* instruction:

```
ADD AX, BX
```

(ii) Show the contents of *CX* and the flags (*O*, *S*, *Z*, *A*, *P*, and *C*) at the end of executing the *SUB* instruction:

```
SUB CX, DX
```

Q3. (5 pts) Write an 8086 assembly program to (a) display a '?', (b) read two decimal digits, and (c) display them and their sum on the next line, with an appropriate message.

Sample Execution:

```
?27
2 + 7 = 9
```

Q4. (5 pts) Write an 8086 assembly program to ask the user to enter his name (up to 25 characters) and then display a greeting statement starting with 'Assalamu Alaikum' to his name in the next line.

Sample Execution:

```
ENTER YOUR NAME: Muhamed Mudawar
Assalamu Alaikum Muhamed Mudawar
```