

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
COLLEGE OF COMPUTER SCIENCE AND ENGINEERING
COMPUTER ENGINEERING DEPARTMENT

COE 205 - Term 061
Assignment #2

Problem 1 (40 points: Each question 5 points)

Q.1

Consider the following:

```
Var1 BYTE 15 DUP(2, 3, 5 DUP(11, 12))
```

This statement will:

- A. Allocate 150 bytes in memory
- B. Allocate 180 bytes in memory
- C. Allocate 75 bytes in memory

Q2, 3 and 4

Consider the following:

```
.data  
Var1 BYTE 12h, 13h, 14h, 15h, 16h, 17h, 18h, 19h  
Var2 LABEL WORD  
Var3 LABEL DWORD  
Num EQU 5  
Var4 BYTE 22h, 23h, 24h, 25h, 26h, 27h, 28h, 29h
```

Q.2

What is the value contained in AX after the execution of the following statement:

```
MOV AX, OFFSET Var3
```

- A. 0008h
- B. 000Ah
- C. 0001h

Q.3

What is the value of register BX after the execution of the following instruction:

```
MOV BX, Var2+6
```

- A. 2726h
- B. 2827h
- C. 2928h

Q.4

What is the value of register EBX after the execution of the following instruction?

```
MOV EBX, Var3
```

- A. 29282726h
- B. 25242322h
- C. 27262524h

Q5, 6, 7 and 8

Consider the following:

```
.data
Var1 BYTE 0Ch, 0Dh, 0Eh, 0Fh
Var2 WORD 0Ch, 0Dh, 0Eh, 0Fh
Var3 DWORD 0Ch, 0Dh, 0Eh, 0Fh
Msg BYTE 'Virtually'
```

Q.5

Compute the address that should be used to access the letter 'V' in the word 'Virtually'

Q.6

Compute The address that should be used to access the second 'l' of the word 'Virtually'.

Q.7

What is the value of the register AX after the execution of the following instruction:

```
MOV AX, Var2+2
```

- A. 000Ch
- B. 0C0Dh
- C. 000Dh

Q.8

What is the value of the register EAX after the execution of the following instruction:

```
MOV AX, TYPE Var3
```

- A. 2
- B. 4
- C. 8

Problem 2 (40 points)

Consider the following:

```
.data
Table1    BYTE  8, 10h, 9, 20h, 10, 23h, F6h, 22h, 16h
NumE     EQU  LENGTHOF Table1
Array    DWORD 01h, 02h, 03h, 04h
```

1. Consider the following statement: (10 points)

```
MOV  EAX, NumE
```

The addressing mode of operand NumE is:

- A. Direct
- B. Immediate
- C. Register

Justify your answer:

2. Consider the following statement: (10 points)

```
MOV  NumE, EBX
```

Is this a correct statement?

- A. Yes.
- B. No.

Justify your answer.

3. Consider the following statement: (10 points)

```
MOV  EAX, Table1 + LENGTHOF Table1
      is equivalent to:
MOV  EAX  Array
```

Is this correct?

- A. Yes.
- B. No.

Justify your answer.

4. We want to move the second word in the double word “Array” to the register BX. Write the statement that will achieve that. (10 points)

Problem 4 (20 points)

Consider the following data allocation statements:

```
.data
Var1      BYTE  0Ch, 0Dh, 0Eh, 0Fh
Var2      WORD  0Dh, 0Eh, 0Fh, 0Ah
Var3      DWORD 0Eh, 0Fh, 0Ah, 0Bh
Var4      LABEL WORD
Var5      LABEL DWORD
Msg       BYTE  'Virtually'
Table1    BYTE  5 DUP(27,35h)
```

Please fill the content of the following table to show the effect of the statements above.

Label	Address	Data	Label	Address	Data
	0000			0018	
	0001			0019	
	0002			001A	
	0003			001B	
	0004			001C	
	0005			001D	
	0006			001E	
	0007			001F	
	0008			0020	
	0009			0021	
	000A			0022	
	000B			0023	
	000C			0024	
	000D			0025	
	000E			0026	
	000F			0027	
	0010			0028	
	0011			0029	
	0012			002A	
	0013			002B	
	0014			002C	
	0015			002D	
	0016			002E	
	0017			002F	