Model Answer

Course name: Microprocessors
Course Code: ECE303
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Exam Date: March /2017
Time Allowed: 60 minutes

ID: .....

Name: .....

Q1	Q2	Q3	Q4	Q5	Q6	Total
3	3	3	3	4	4	20

Q1	Complete the following statement, put your answer in the following table	
	The 80286 addresses _____ bytes of memory.	16M bytes
	How much memory is found in the DOS transient program area?	640K
	The 8086 microprocessor addresses _____ bytes of memory.	1M
	the first microprocessors that address 4G bytes of memory?	80386
	The personal computer system addresses _____ bytes of I/O space.	64K
	The extended BX register is addressed as _____.	EBX

Q2	**if a code segment register (CS) contains 000FH and offset (IP) is 30BAH, what is the first and the last address of that segment?**

- **First address:** 000F0H+ 30BAH = 31AAH
- **Last address:** 31AAH + FFFF = 131A9H

Q3	Are these instructions legal or illegal, if not explain why		
	Instruction	**Legal/illegal**	**Why**
	MOV BX,DS	legal	
	MOV CL,AX	illegal	illegal; because using different size register ,source 16-bit & destination 8-bit
	Mov 0x43,AL	illegal	illegal; because using destination can't be constant

Q4	**If AX=1001H and DX=20FFH, list the sum and the contents of each flag register bit (C, A, S, Z, and O) after the ADD AX, DX instruction executes.**

1001H + 20FFH = 3100H
C = 1, A = 0, S = 0, Z = 0, and O = 0

Q5	What are the values of AX in each instruction in the following program	
	instruction	**AX value**
	MOV AX,00A1H	AX=00A1H
	MOV AH,01H	AX=01A1H
	ADD AX,01B3H	AX=01A1H + 01B3H = 0354H

Q6 **Consider the following code in debug program**

```
- a 1500
1234:1500 db 35,96,42,0
```

1. Show in a table the contents of memory location 1498 to 1505
2. Write code starts at effective address 100, that add the first 3 bytes in previous instruction, en replace 0 of the 4th byte with the addition result.

Lowe bank		Higer bank	
Address	**contents**	**address**	**content**
1498	x	1499	x
1500	35	1501	96
1502	42	1503	0
1504	x	1505	x

```
-a 100
mov [1500],35
mov [1501],96
mov [1502],42
mov [1503],0
Mov bx,1500
Add al,[bx]
Add al,[bx+1]
Add al,[bx+2]
Mov [bx+3],al
```