

Cairo University
 Faculty of Engineering
 Computer Eng. Department

CMP201
 Microprocessor Systems (A)
 Midterm Exam

Total: 45 Points
 2016-2017
 One Hour

This is an open-book, open notes exam. All electronic devices - Except calculators - are forbidden.

Make any reasonable assumptions (if necessary)

Answer the following questions [any answer outside answer location will be discarded]

1. [2] Increasing the segment register increases
2. [4] What is the function of the following programs

MOV AX,N MOV BX,N MUL AX MUL BX MOV N2,AX	MOV AX,A MOV BX,B ADD AX,BX
.....

3. [4] Circle all syntax errors of the following program and write the reason of each

	Reason
MOV CL,[BX][DI]+10
MOV DS, 20H
MOV ES,DX
MOV DL,234H
MOV BL,[0FAD10H]
MOV VAR1,BL
XOR VAR2,AL
MOV VAR1,VAR2

4. [4] Write a single instruction for each of the following operations. Note that no other changes should occur.
 - a. Set the most significant nibble in AX to 1:.....
 - b. Clear the even-numbered bits in AX to 0 :
5. [10] A microprocessor designer decided to modify the 8086 microprocessor. He suggested to increase the address bus to 40 bits.
 - a. What would be the size of the total addressing space on this new device?

 - b. The designer find out that all registers are 16 bit. Therefore, the traditional method of memory addressing [DS:IP] is not valid. Suggest a new suitable method.

[ANSWER ON THE BACK OF THIS PAGE]

6. [2] Identify the operand addressing mode used in each of these instructions.
- a. AND DX,AX :.....
- b. JMP JMPTAB[BX] ::.....
7. [3] Assuming that 8086 address bus was 24 bits. The DS= 1234H and the offset =1212H calculate the physical address.

.....

.....

8. [3] The following two codes make the same operation. Which of them is better? Why?

CMP AL,0EFH JA LBL ; First Code Section JMP LBL2 LBL: ; Second Code Section LBL2:	CMP AL,0EFH JBE LBL ; Second Code Section JMP LBL2 LBL: ; First Code Section LBL2:
A	B

Code.....is better because.....

9. [2] For an image that contains a lot of colors, it is preferable to use (low/high) resolution video mode because.....
10. [5] Write a program that tests whether a string is a palindrome (sequence that reads the same backward as forward) **[ANSWER ON THE BACK OF THIS PAGE]**
11. [4] Make a drawing program that allow the user to draw using mouse **[ANSWER ON THE BACK OF THIS PAGE]**
12. [3] Assume signed operation, modify the following code to avoid overflow problem

MOV AL,60H
MOV BL,46H
ADD AL,BL
