AL-BAHA UNIVERSITY

FACULTY OF ENGINEERING

Electrical Engineering Department

جامعة الباحة

كلية الهندسة

قسم الهندسه الكهربائية

Course: MICROPROCESSORS **Course Code:** EE 32051404

Homework # 1

CHAPTER 2: THE MICROPROCESSOR AND ITS ARCHITECTURE

5. Which register holds a count for some instructions? : CL, CX.
6. What is the purpose of the IP register?

The *purpose of the IP/EIP register* is to hold the offset address of the next instruction to be executed in the program. In other words, controls the flow of a program.

7. The carry flag bit is not modified by which arithmetic operations? : INC and DEC
8. Will an overflow occur if a signed FFH is added to a signed 01H?

If a *signed FFH* is *added* to a *signed 01H* no *overflow will occur*

9. A number that contains 3 one bits is said to have ___ Odd __ parity.
10. Which flag bit controls the INTR pin on the microprocessor?

The I (interrupt) flag bit controls the operation of the INTR (interrupt request) input pin.

12. What is the purpose of a segment register in the real mode operation of the microprocessor?

The segment register addresses the lower address in 64k memory segment.

13. In the real mode, show the starting and ending addresses of each segment located by the following segment register values:

(a) 1000H ==> 10000H—1FFFFH
(b) 1234H ==>12340H—2233FH
(c) 2300H ==>23000H—32FFFH
(d) E000H ==> E0000H—EFFFFH
(e) AB00H ==> AB000H—BAFFFH

14. Find the memory address of the next instruction executed by the microprocessor, when operated in the real mode, for the following CS:IP combinations:

a) CS = 3456H and IP = ABCDH ==> 3F12Dh
b) CS = 1A00H and IP = B000H ==> 25000h
c) CS = 2300H and IP = 1A00H ==> 24A00h
d) CS = 2000H and IP = 1000H ==> 21000h
e) CS = 1000H and IP = 2000H ==> 12000h

16. Which register or registers are used as an offset address for the string instruction destination in the microprocessor? : DI

18. The stack memory is addressed by a combination of the ___SS___ segment plus___SP__ offset.

19. If the base pointer (BP) addresses memory, the __ Stack__ segment contains the data.
20. Determine the memory location addressed by the following real mode 8086 register combinations:

a) SS = 2900H and SP = 3A00H ==> 2CA00h

b) DS = A000H and BX = 1000H ==> A1000h
c) SS = 2300H and BP = 3200H ==> 26200h
d) DS = 2000H and SI = 1002H ==> 21002h
e) DS = 1000H and DI = 2000H ==> 12000h