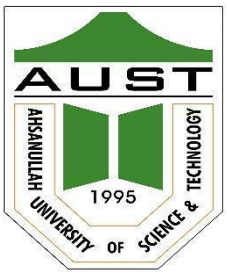

Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

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Section : **A**

Assembly-5.

For each of the following instructions, give the new destination contents and the new settings of cf, sf, zf, pf and of. Suppose that the flags are initially 0 in each part of this question.

1. ADD AX, BX where AX contains 7FFFH and BF contains 0001H.
2. DEC AL where AL contains 00H
3. NEG AL where AL contains 7FH
4. XCHG AX, BX where AX contains 1ABC H and BX contains 712AH

Ans. 1 ADD istruction used ~~in~~ for performing simple addition of binary data in byte.

Now, AX = 7fff H , BX = 0001 H

0111 1111 1111 1111 b. 0000 0000 0000 0001 b.

so, 0111 1111 1111 1111
(4) 0000 0000 0000 0000
1000 0000 0000 0000

in Hexa - the sum is 8000 H.

CF = 0, Because there is no carry out.

SF = 1, There is 1 in MSB, so sign flag is 1.

ZF = 0, The result is non-zero,

PF = 1, The low byte of the result has ~~parity~~ Odd panity.

OF = 1. There is carry in but no carry out.

ANS-2 AL = 00H.

Binary conversion of 00H → 0000 0000.

The DEC instruction is used for decrementing an operand by 1.

So,
$$\begin{array}{r} 0000\ \ 0000 \\ (-)\qquad\quad\ \ 1 \\ \hline 1111\ \ 1111 \end{array}$$

in hexa the result is FFH.

CF = NO effect. Increment / Decrement do not effect on CF

SF = 1, There is 1 in MSB.

ZF = 0. The result is non-zero.

PF = 1. The low byte of the result is even panity

OF = 0. Because there is Borrow and Borrow out

Ans 3 The 'NEG' instruction negates a ~~ba~~ value by finding 2's complement of its single operand.

We can say 'NEG' instruction ~~is~~ used for finding 2's complement of operand.

AL = 7FH.

	0111B	1'111
1's compl:.	1000	0000
(+)		1
	1000	0001

in Hexa → 81H

CF = 1. Because In Neg the result is non-zero.

SF = 1. There is 1 ~~MSB~~ in MSB

ZF = 0. The result is non zero.

PF = 1. The low byte has even parity.

OF = 0 Because there is no carry in or out.

Ans-4. XCHG instruction used for exchanging the content of two perand.

The rules for Operands in the XCHG instruction are the same as those for the MOV instruction.

AX = 1ABC H

BX = 712A H.

After exchanging AX = 712A H and BX = 1ABC H.

In exchanging there is no effect of any other flag.