

MPI Assignment - 2

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Section - A1

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Q1. WAP to count no. of 1's in a byte and write it into BL register.

Q2. Let a byte stores a number 50H

```
MOV AL, 0050H
```

```
MOV BL, 0000H
```

```
MOV CL, 8
```

```
L1: SHL AL, 1
```

```
JNC L2
```

```
INC BL
```

```
L2: DEC CL
```

```
JNZ L1
```

```
HLT
```

Q3. Write an ALP to find the max. byte from a block of 256 bytes starting at 53000H.

```
Q4. MOV AX, 5000H
```

```
MOV DS, AX
```

```
MOV BX, 3000H
```

```
MOV CX, 0100H
```

```
MOV AH, 00H
```

```
NEXT: CMP AH, [BX]
```

```
JAE PASS
```

```
MOV AH, [BX]
```



```
PASS: INC BX
DEC CX
JNZ NEXT
HLT
```

Maximum byte stored in AH register

③ Write an ALP to find the average of an array of size 256 bytes of unsigned integers starting at 6A000H.

```
③ MOV AX, 6000H
MOV DS, AX
XOR AX, AX
MOV BX, 00H
MOV CX, 100H
AGAIN: ADD AL, [BX + 2000H]
ADC AH, 00H
NEXT: INC BX
LOOP AGAIN
XOR DX, DX
DIV BX
HLT
```

④ Write an ALP that counts the no. of letters 'M' in a string of size 256 bytes starts at 5F600H. (4D is the ASCII code of letter M).

```
④ MOV AX, 5000H
MOV DS, AX
LEA SI, [F600H]
```


MOV CX, 100H

MOV DL, 70H

MOV AL, 40H

AGAIN: CMP AL, [SI]

JNE NEXT

INC DL

NEXT: INC SI

LOOP AGAIN

HLT

- ⑤ Write a piece of code that transfers a block of 256 bytes stored at locations starting at ³⁴3000H. Store the result ^{starting} at 3600H.

⑤ MOV AX, 3000H

MOV DS, AX

MOV BX, 0000H

MOV CX, 0100H

NEXT: MOV AL, [BX + 4000H]

MOV [BX + 6000H], AL

INC BX

DEC CX

JNZ NEXT

HLT

- ⑥ Write an ALP to find the factorial of a number stored at location in memory.

- ⑥ Let offset address of the memory (where no. is stored) be [SI] at 5000 base address


```

MOV AX, 5000H
MOV DS, AX
MOV CX, [BX]
MOV AX, 0001H
LOOP: MUL CX
DEC CX
JNZ LOOP
HLT

```

⑦ Write an ALP to find the minimum value of a byte from a block of 256 bytes starting at 53000H. Store the result at 56000H.

```

⑦ MOV AX, 5000H
MOV DS, AX
MOV BX, 3000H
MOV CX, 0100H
MOV AH, 00H
NEXT: CMP AH, [BX]
JBE PASS
MOV AH, [BX]
PASS: INC BX
DEC CX
JNZ NEXT
MOV [3000H], AH
HLT

```

⑧ Write an ALP to find the 2's complement of a block of 100 bytes starting at 53000H and store the result starting from 54000H.


```

(8) MOV AX, 5000H
    MOV DS, AX
    MOV SI, 3000H
    MOV DI, 4000H
    MOV BX, 64H
    NEXT: MOV [SI]
    MOV AX, [SI]
    MOV [DI], AX
    INC SI
    INC DI
    DEC BX
    JNZ NEXT
    HLT

```

(9) Move a byte string, 16 bytes long, from the offset 0200H to 0300H in the segment 7000H.

```

(10) MOV AX, 7000H
    MOV DS, AX
    MOV SI, 0200H
    MOV DI, 0300H
    MOV CX, 16
    AGAIN: MOV AL, [SI]
    INC SI
    MOV [DI], AL
    INC DI
    LOOP AGAIN
    HLT

```