Name: - ATRIJ ROY

ROLL NO: - 002311001086,

SECTION: - IT A3 UG2

Jadavpur University
Session 2024-25, Odd Semester
Microprocessor Lab
Paper Code: IT/S/222

Assignment 1

1. Write an Assembly Language Program to add two sixteen-bit numbers. The numbers are stored in DS: 0030H and DS: 0040H. Store the result in DS: 0050H, DS: 0051H, and DS: 0052H.

```
.model small

.stack 100h

.data

.code

main proc

MOV AX,@DATA

MOV DS,AX

MOV SI, 0030H

MOV AX, [SI]

MOV SI, 0040H

ADD AX,[SI]

MOV SI, 0050H

MOV [SI],AX

MOV AH, 00H

ADC AH,AH

ADD SI, 0002H

MOV [SI],AH
```

```
INT 03H

main endp

end main
```

2. Write an Assembly Language Program to subtract an 8-bit number stored in DS: 0030H from a number stored in DS: 0040H using 2's complement method. Store the result in DS: 0050H, and DS: 0051H.

```
.model small

.stack 100h

.code

main proc

MOV AX, @DATA

MOV DS,AX

MOV SI,0030H

MOV AL, [SI]

NOT AL

INC AL

MOV SI,0040H

ADD AL,[SI]

JC L

NOT AL

INC AL

L:

 MOV SI,0050H

 MOV [SI],AL

 CMC

 MOV AH,00H

 ADC AH,AH

 INC SI

 MOV [SI],AH
```

```
INT 03H

MOV AH,4CH

INT 21H

main endp

end main
```

3. Write a program to transfer a block of 8 data bytes from memory location DS: 0030H to DS: 0040H.

```
.model small

.stack 100h

.data

.code

main proc

MOV AX, @DATA

MOV DS,AX

MOV ES, AX

MOV SI,0030H

MOV DI,0040H

MOV CX,0008H

CLD

L1: MOVSB

LOOP L1

INT 03H

MOV AH, 4CH

MAIN ENDP

END MAIN
```

4. Write an 8086 Assembly Language Program for the addition of 7 eight-bit numbers stored from DS: 0030H. Store the result in DS: 0050H and DS: 0051H.

```
.model small

.stack 100h

.data
```

```
.code
main proc
mov ax,@data
mov ds,ax
mov si,0030h
mov al,00h
mov ah,00h
mov CX,0008h
L1:
add al,[si]
adc ah,00h
inc si
LOOP L1
mov Di,0050h
mov [Di],aL
INC DI
MOV [DI],AH
int 03h
mov ah,4ch
Int 21h
main endp
end main
```

5. Write an 8086 Assembly Language Program for the addition of 5 sixteen-bit numbers stored from DS: 0030H. Store the result in DS: 0050H, DS: 0051H, DS: 0052H.

```
.model small
.stack 100h
.code
.data
main proc
```

```
mov ax,@data
mov ds,ax
mov si,0030h
mov al,00h
mov ah,00h
mov CX,0002h
L1:
add al,[si]
DAA
adc ah,00h
inc si
LOOP L1
mov Di,0050h
mov [Di],aL
INC DI
MOV [DI],AH
int 03h
mov ah,4ch
Int 21h
main endp
end main
```

6. Write an Assembly Language Program for the addition of five BCD numbers stored from DS: 0030H. Store the result in DS: 0040H and DS: 0041H.

```
.model small
.stack 100h
.data
.code
main proc
```

```
mov ax,@data
mov ds,ax
mov si,0030h
mov al,00h
mov ah,00h
mov CX,0002h
L1:
add al,[si]
DAA
adc ah,00h
inc si
LOOP L1
mov Di,0050h
mov [Di],aL
INC DI
MOV [DI],AH
int 03h
mov ah,4ch
Int 21h
main endp
end main
```

7. Write an Assembly Language Program to subtract a BCD number stored in DS: 0040H from a BCD number stored in DS: 0050H. Store the result in DS: 0060H and DS: 0061H.

```
.model small
.stack 100h
.data
.code
main proc
mov ax,@data
```

```
mov ds, ax
mov dl,00h
mov si, 0050h
mov al, [si]
mov si, 0040h
sub al,[si]
das
jnc l1

mov bl, al
mov al, 99h
sub al, bl
inc al
daa
mov dl, 01h

l1:
mov si, 60h
mov [si],al
inc si
mov [si],dl
int 03h
mov ah, 4ch
int 21h
main endp
end main
```

8. Write an Assembly Language Program to multiply two eight bit number stored in DS: 0040H and DS: 0050H. Store the result from DS: 0060H.

```
.model small
.stack 100h
.data
.code
main proc
mov ax,@data
mov ds, ax
mov si, 0040h
mov al, [si]
mov si, 0050h
mov bl, [si]
mul bl
mov si, 0060h
mov [si], al
int 03h
mov ah, 4ch
int 21h
main endp
end main
```

9. Write an Assembly Language Program to multiply two sixteen bit number stored in DS:0040H and DS:0050H. Store the result from DS: 0060H.

```
.model small
.stack 100h
.data
.code
main proc
mov ax,@data
mov ds, ax
```

```
mov si, 0040h
mov ax, [si]
mov si, 0050h
mov bx, [si]
mul bx
mov si, 0060h
mov [si], ax
mov si, 0062h
mov [si],dx
int 03h
mov ah, 4ch
int 21h
main endp
end main
```

10. Write an Assembly Language Program to divide 88H by 33H. Store the quotient in DS: 0060H and remainder in DS: 0061H.

```
.model small
.stack 100h
.data
.code
main proc
mov ax,@data
mov ds, ax
mov ax,0000h
mov al, 88h
mov bl, 33h
div bl
mov si, 0060h
```

mov [si], ax

int 03h

mov ah, 4ch

int 21h

main endp

end main

11. Write an Assembly Language Program to divide 2222H by 55H. Store the quotient from DS: 0060H and remainder in DS: 0062H.

.model small

.stack 100h

.data

.code

main proc

mov ax,@data

mov ds, ax

mov ax,0000h

mov ax,2222H

mov bl, 55h

div bl

mov si, 0060h

mov [si], ax

mov si, 0062h

mov [si], dx

int 03h

mov ah, 4ch

int 21h

main endp

end main