OSAMA SAGHEER
BCS211074
SECTION 1

PRACTICE TASK LAB 4

TASK 1
CODE:

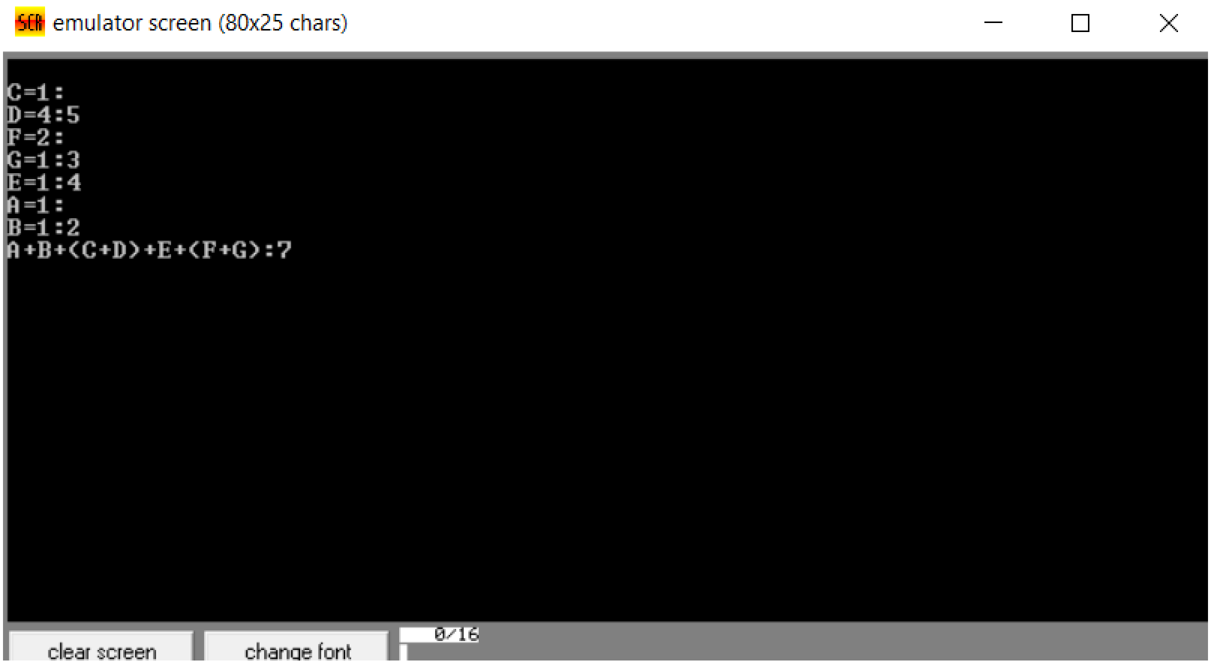
```
.model data
 .data
 A db 1
 B dB 1
 C db 1
 D dB 4
 E db 1
 F db 2
 G dB 1
var1 db ?
var2 db ?
var3 db ?
var4 db ?
var5 db ?


msg1 db 0ah,0dh, "A=1:","$"
msg2 db 0ah,0dh, "B=1:","$"
msg3 db 0ah,0dh, "C=1:","$"
msg4 db 0ah,0dh, "D=4:","$"
msg5 db 0ah,0dh, "E=1:","$"
msg6 db 0ah,0dh, "F=2:","$"
msg7 db 0ah,0dh, "G=1:","$"
res db 0ah,0dh, "A+B+(C+D)+E+(F+G):","$"

.code
mov ax,@data
mov ds,ax
;(c+d)
;display msg 3
lea dx,msg3
mov ah,9
```

```
int 21h

;print a msg 4
lea dx,msg4
mov ah,9
int 21h
;store c in al reg
mov al,C
mov bl,al

;store al in bl reg
mov al,D
;store from al to cl reg
mov cl,al
;add bl and cl
add bl,cl


mov var1,bl
mov dl,var1
;add dl,30h
add dl,48
mov ah,02
int 21h

;(f+G)
;display msg 6
lea dx,msg6
mov ah,9
int 21h
;display msg 7
lea dx,msg7
mov ah,9
int 21h


;store c in al reg
mov al,F
;store al in bl reg
mov bl,al

;store al in bl reg
mov al,G
;store from al to cl reg
mov cl,al
;add bl and cl
add bl,cl
mov var2,bl
mov dl,var2
;add dl,30h
add dl,48
mov ah,02
```

```
int 21h

;display msg 5
lea dx,msg5
mov ah,9
int 21h
;Add var2(F+G) with E
;store c in al reg
mov al,var2
mov bl,al
mov al,E
mov cl,al
add bl,cl
mov var3,bl
mov dl,var3
add dl,48
mov ah,02
int 21h


;A+B
;display msg 1
lea dx,msg1
mov ah,9
int 21h
;display msg 2
lea dx,msg2
mov ah,9
int 21h


;store c in al reg
mov al,A
;store al in bl reg
mov bl,al

;store al in bl reg
mov al,B
;store from al to cl reg
mov cl,al
;add bl and cl
add bl,cl
mov var4,bl
mov dl,var4
;add dl,30h
add dl,48
mov ah,02
int 21h


;add var1 with var4
```

```
lea dx,res
mov ah,09
int 21h

mov al,var4
mov bl,al
mov al,var1
mov cl,al
add bl,cl
mov var5,bl
mov dl,var5
add dl,48
mov ah,02
int 21h
```

OUTPUT:



```
C=1:
D=4:5
F=2:
G=1:3
E=1:4
A=1:
B=1:2
A+B+(C+D)+E+(F+G):7
```

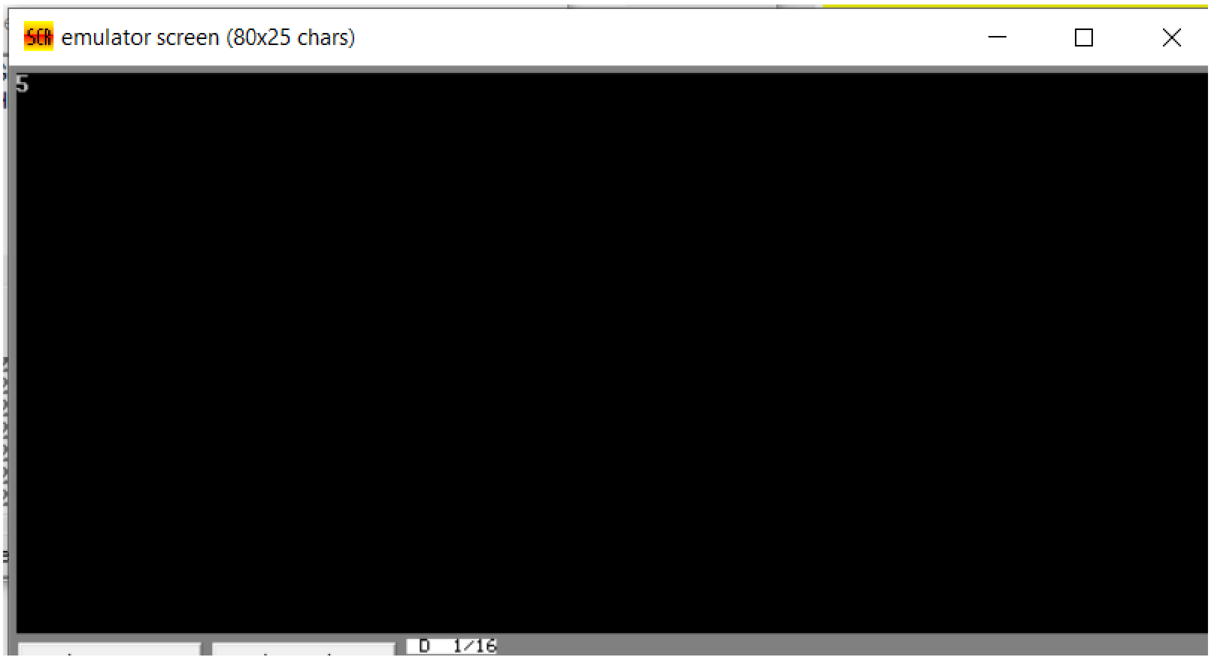
—---

TASK 2

CODE:

```
.model small

.data
A db 6
B db 5
C db 4
D db 3
E db 2
F db 4
G db 1
Res db 0
var1 db 0
var2 db 0

.code
mov ax, @data
mov ds, ax

; Calculate (C-D)
mov al, C
sub al, D
mov var1, al

; Calculate (F-G)
mov al, F
sub al, G
mov var2, al

; Calculate the final result
mov al, A
add al, B
sub al, var1
sub al, E
sub al, var2
mov Res, al

; Display the result
mov dl, Res
add dl, 48
mov ah, 02h
int 21h

mov ah, 4Ch
int 21h
```

OUTPUT:



```
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```
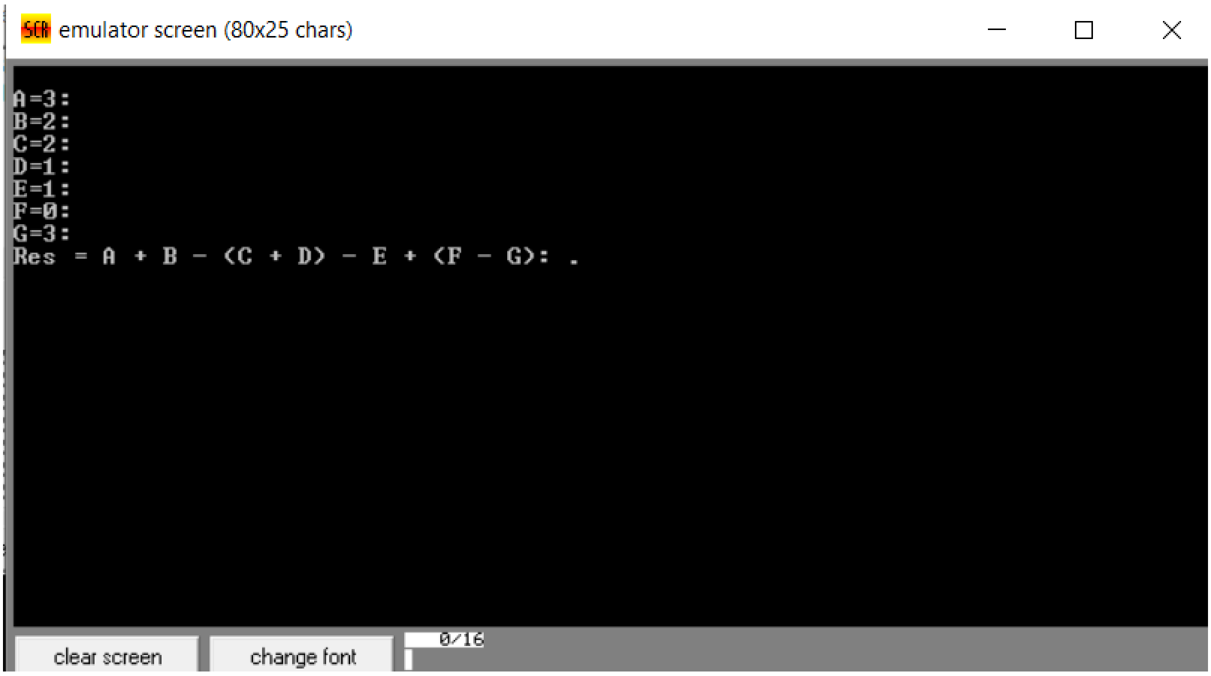

TASK 3
CODE:

```
.model small
.stack 100h
.data
A db 3
B db 2
C db 2
D db 1
E db 1
F db 0
G db 3

Res db ?

msg1 db 0ah,0dh, "A=3:","$"
msg2 db 0ah,0dh, "B=2:","$"
msg3 db 0ah,0dh, "C=2:","$"
msg4 db 0ah,0dh, "D=1:","$"
msg5 db 0ah,0dh, "E=1:","$"
msg6 db 0ah,0dh, "F=0:","$"
msg7 db 0ah,0dh, "G=3:","$"
resmsg db 0ah,0dh, "Res = A + B - (C + D) - E + (F - G) : ","$"

.code
main proc
mov ax,@data
mov ds,ax

;display msg 1
lea dx,msg1
mov ah,9
int 21h

;display msg 2
lea dx,msg2
mov ah,9
int 21h

;display msg 3
lea dx,msg3
mov ah,9
int 21h

;display msg 4
lea dx,msg4
mov ah,9
```

```
int 21h

;display msg 5
lea dx,msg5
mov ah,9
int 21h

;display msg 6
lea dx,msg6
mov ah,9
int 21h

;display msg 7
lea dx,msg7
mov ah,9
int 21h

; calculate Res = A + B - (C + D) - E + (F - G)
mov al, C
add al, D
sub al, F
add al, G
mov bl, A
add bl, B
sub bl, E
sub bl, al
mov R

es, bl

;display result
lea dx, resmsg
mov ah, 9
int 21h

mov dl, Res
add dl, 48
mov ah, 02
int 21h

mov ah, 4ch
int 21h

main endp
end main
```

OUTPUT:



```
A=3:
B=2:
C=2:
D=1:
E=1:
F=0:
G=3:
Res = A + B - (C + D) - E + (F - G): .
```

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TASK 4

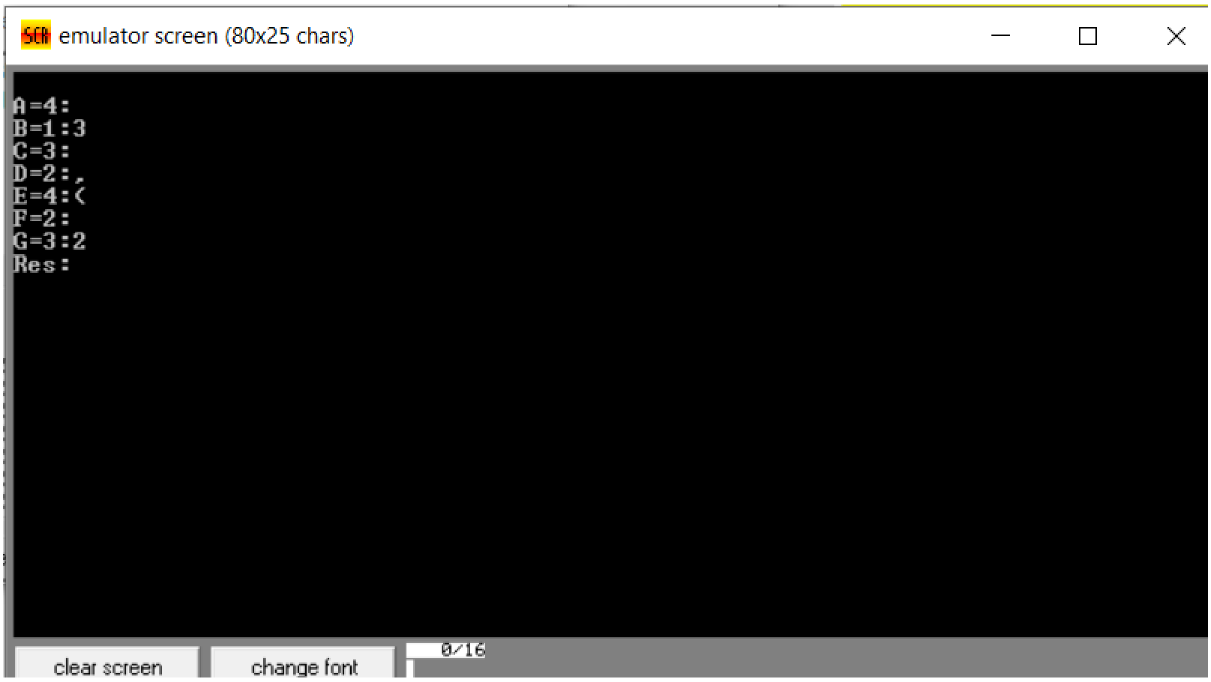
CODE:

```
.model data
.data
A db 4
B db 1
C db 3
D db 2
E db 4
F db 2
G db 3
Res db ?

msg1 db 0ah,0dh, "A=4:","$"
msg2 db 0ah,0dh, "B=1:","$"
msg3 db 0ah,0dh, "C=3:","$"
msg4 db 0ah,0dh, "D=2:","$"
msg5 db 0ah,0dh, "E=4:","$"
msg6 db 0ah,0dh, "F=2:","$"
msg7 db 0ah,0dh, "G=3:","$"
resmsg db 0ah,0dh, "Res:","$"

.code
mov ax, @data
mov ds, ax

; A-B
lea dx, msg1
mov ah, 9
int 21h

lea dx, msg2
mov ah, 9
int 21h

mov al, A
mov bl, B
sub al, bl
mov dl, al
add dl, 48
mov ah, 2
int 21h

; -(C+D)
lea dx, msg3
mov ah, 9
int 21h

lea dx, msg4
mov ah, 9
```

```
int 21h

mov al, C
mov bl, D
add al, bl
neg al
mov cl, al

mov al, cl
mov bl, 1
add al, bl
mov dl, al
add dl, 48
mov ah, 2
int 21h

; +E
lea dx, msg5
mov ah, 9
int 21h

mov al, E
add dl, al
mov ah, 2
int 21h

; -(F-G)
lea dx, msg6
mov ah, 9
int 21h

lea dx, msg7
mov ah, 9
int 21h

mov al, F
mov bl, G
sub al, bl
neg al
mov cl, al

mov al, cl
mov bl, 1
sub al, bl
add dl, al
mov ah, 2
int 21h

; Store result in Res
lea dx, resmsg
mov ah, 9
int 21h
```

```
mov al, dl
sub al, 48
mov Res, al

mov ah, 4ch
int 21h
```

OUTPUT:



```
A=4:
B=1:3
C=3:
D=2:,
E=4:<
F=2:
G=3:2
Res:
```