COMSATS University Islamabad, Lahore

Assignment I – Semester FALL 2020

Course Title:	Microprcessor and Assembly Language - Lab		Course Code:	CSC 321	Credit Hours:	1
Course instructor/s:	Mughees Ahmad		Program Name:	BCS		
Semester:	4th	Batch:	SP19-BC	Section:	A,B,C	
Deadline:	**04-10-2020 11:00 PM**		**Maximum Marks:**		**10**	

Question # 1:

Write a program to

(a) display a "?",

(b) read two decimal digits whose sum is less than 10,

(c) display them and their sum on the next line, with an appropriate message.

Sample Execution:

?17

THE SUM OF 1 AND 7 is 8.

Solution: -

```
.MODEL SMALL
.STACK 100H

.DATA


   str1 db 'The sum of '
   num1 DB ?
   str2 db ' and '
   num2 DB ?
   str3 db ' is '
   num3 DB ?
   str4 db '$'

.CODE
   MAIN PROC

   MOV AX,@DATA
   MOV DS,AX
```

```
    MOV AH , 2
    MOV DL , '?'
    INT 21h

    MOV AH , 1
    INT 21h
    MOV BL , AL
    MOV num1 , AL

    MOV AH , 1
    INT 21h
    MOV num2 , AL

    ADD BL , AL
    SUB BL , '0'
    mov num3 , BL


    MOV AH , 2
    MOV DL , 0AH
    INT 21h

    MOV DL , 0DH
    INT 21h

    MOV AH,9
    LEA DX, str1
    INT 21H

    MAIN ENDP
END MAIN
```

Question # 2:

Write a program to (a) prompt the user, (b) read first, middle, and last initials of a person's name, and (c) display them down the left margin.

Sample Execution:

Enter three initials: JFK

J

K

F

Solution: -

```
.MODEL SMALL
.STACK 100H
.DATA
    str1 db 'Enter the initials: $'
    first DB ?
    middle DB ?
    last DB ?


.CODE
    MAIN PROC

    MOV AX,@DATA
    MOV DS,AX

    MOV AH, 9
    LEA DX , str1
    INT 21h

    MOV AH , 1
    INT 21h
    MOV first , AL

    MOV AH , 1
    INT 21h
    MOV middle , AL

    MOV AH , 1
    INT 21h
    MOV last , AL
```

```
MOV AH , 2    ; new line
MOV DL , 0AH
INT 21h

MOV DL , 0DH
INT 21h


MOV AH , 2
MOV DL , first
INT 21h

MOV AH , 2    ; new line
MOV DL , 0AH
INT 21h

MOV DL , 0DH
INT 21h

MOV AH , 2
MOV DL , middle
INT 21h

MOV AH , 2    ; new line
MOV DL , 0AH
INT 21h

MOV DL , 0DH
INT 21h

MOV AH , 2
MOV DL , last
INT 21h


MAIN ENDP
END MAIN
```

Question # 3:

Write a program to read one of the hex digits A-F, and display it on the next line in decimal.
Sample Execution:
Enter a hex digit: A
In decimal it is 10

Solution: -
```
.MODEL SMALL
.STACK 100H
.DATA
   str1 db 'Enter number in Hexadecimal: $'
   str2 db 'Number in decimal: $'
   num DB ?
.CODE
   MAIN PROC

   MOV AX, @DATA
   MOV DS, AX

   MOV AH, 9
   LEA DX , str1
   INT 21H

   MOV AH , 1
   INT 21H

   MOV num,AL

   MOV AH , 2
   MOV DL , 0AH
   INT 21h

   MOV DL , 0DH
   INT 21h

   MOV AH , 9
   LEA DX , str2
   INT 21H

   MOV AH , 2
   MOV DL , '1'
```

```
INT 21H

SUB num , 11h

MOV AH , 2
MOV DL , num
INT 21H

MAIN ENDP
END MAIN
```