



Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

Course No : CSE3108

Course Title : Microprocessors Sessional

Assignment No : 05

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Submitted By -

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Section : B

Question:

Dot matrix : '0M7M7'

Seven segment : '077'

LED : GREEN

Answer:

DSEG SEGMENT 'DATA'

MAINLOOP DB 0

COUNT DB 0

COUNT2 DB 0

VALUE DB 3EH, 7FH, 01H, 01H, 00H, 7FH, 02H, 09H, 02H, 7FH, 00H,
7FH, 01H, 01H, 01H, 7FH, 02H, 09H, 02H, 7FH, 3EH, 41H, 41H, 41H

INDEX DW 2018H, 2017H, 2016H, 2015H, 2014H, 2013H, 2012H, 2011H, 2010H,
200FH, 200EH, 200DH, 200CH, 200BH, 200AH, 2009H, 2008H,
2007H, 2006H, 2005H, 2004H, 2003H, 2002H, 2001H, 2000H,

INDEX2 DW 2017H, 2016H, 2015H, 2014H, 2013H, 2012H, 2011H, 2010H, 200FH, 200EH,
200DH, 200CH, 200BH, 200AH, 2009H, 2008H, 2007H, 2006H,
2005H, 2004H, 2003H, 2002H, 2001H, 2000H, 2018H

INDEX3 DW 2016H, 2017H, 2015H, 2014H, 2013H, 2012H, 2011H, 2010H, 200FH,
200EH, 200DH, 200CH, 200BH, 200AH, 2009H, 2008H, 2007H, 2006H,
2005H, 2004H, 2003H, 2002H, 2001H, 2000H, 2018H, 2017H

INDEX4 DW 2015H, 2014H, 2013H, 2013H, 2012H, 2011H, 2010H, 200FH,
200EH, 200DH, 200CH, 200BH, 200AH, 2009H, 2008H, 2007H, 2006H,
2005H, 2004H, 2003H, 2002H, 2001H, 2000H, 2018H, 2017H, 2016H

INDEX5 DW 2014H, 2013H, 2012H, 2011H, 2010H, 200FH, 200EH, 200DH,
200CH, 200BH, 200AH, 2009H, 2008H, 2007H, 2006H, 2005H,
2004H, 2003H, 2002H, 2001H, 2000H, 2018H, 2016H, 2015H

- INDEX 6 DW 2013, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h,
- INDEX 7 DW 2012, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h,
- INDEX 8 DW 2015, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h,
- INDEX 9 DW 2010, 200Fh, 200Eh, 200Dh, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h,
- INDEX 10 DW 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h,
- INDEX 11 DW 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh,
- INDEX 12 DW 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh,
- INDEX 13 DW 200Ch, 200Bh, 200Fh, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh,
- INDEX 14 DW 200Bh, 200Ah, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Dh, 200Ch, 200Bh,
- Index 15 DW 200Ah, 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh,
- Index 16 DW 2009h, 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah,
- Index 17 DW 2008h, 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h,
- Index 18 DW 2007h, 2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h,

Inden 19 DW 2006h, 2008h, 2009h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h,
2014h, 2013h, 2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh,
200Ah, 2009h, 2008h, 2007h,

Inden 20 DW 2005h, 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h,
2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h,
2008h, 2007h, 2006h,

Inden 21 DW 2004h, 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h,
2012h, 2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h,
2007h, 2006h, 2005h,

Inden 22 DW 2003h, 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h,
2011h, 2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h,
2007h, 2006h, 2005h, 2004h

Inden 23 DW 2002h, 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h,
2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h,
2007h, 2006h, 2005h, 2004h, 2003h, 8

Inden 24 DW 2001h, 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h,
2010h, 200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h,
2006h, 2005h, 2004h, 2003h, 2002h, 2001h, 2000h

Inden 25 DW 2000h, 2018h, 2017h, 2016h, 2015h, 2014h, 2013h, 2012h, 2011h, 2010h,
200Fh, 200Eh, 200Dh, 200Ch, 200Bh, 200Ah, 2009h, 2008h, 2007h,
2006h, 2005h, 2004h, 2003h, 2002h, 2001h

DSEG ENDS

SSEG SEGMENT stack 'STACK'

DW 100h DUP(1)

SSEG ENDS

CSEG SEGMENT 'CODE'

START PROC FAR

push ds

mov ax, 0

push ax

mov ax, DSEG

mov ds, ax

mov es, ax

MOV DX, 2001H

MOV AL, 01H

OUT DX, AL

MOV DX, 2030H

MOV AL, 01H

OUT DX, AL

MOV DX, 2070H

MOV AL, 04H

OUT DX, AL

MOV DX, 2003H

MOV AL, 01H

OUT DX, AL

MOV DX, 2030H

MOV AL, 03H

OUT DX, AL

MOV DX, 2004H

MOV AL, 02H

OUT DX, AL

MOV DX, 2030H

MOV AL, 07H

OUT DX, AL

MOV DX, 2030H

MOV AL, 0FH

OUT DX, AL

MOV DX, 2004H

MOV AL, 06H

OUT DX, AL

MOV DX, 2004H

MOV AL, 0EH

OUT DX, AL

```

MOV DX, 2030h
MOV AL, 1Fh
OUT DX, AL

MOV DX, 2004H
MOV AL, 1EH
OUT DX, AL

MOV DX, 2030H
MOV AL, 3FH ;D
OUT DX, AL

MOV DX, 2004h
MOV AL, 3EH
OUT DX, AL

MOV DX, 2003h
MOV AL, 41H
OUT DX, AL
MOV DX, 2002h
MOV AL, 41h
OUT DX, AL

MOV DX, 2001h
MOV AL, 41h
OUT DX, AL

MOV DX, 2000H
MOV AL, 20H
OUT DX, AL

MOV DX, 2000h
MOV AL, 30H
OUT DX, AL

MOV DX, 2000h
MOV AL, 38h
OUT DX, AL

MOV DX, 200H
MOV AL, 3CH
OUT DX, AL

```

MOV DX, 2000h
MOV AL, 3EH ; 0 Dot
OUT DX, AL

MOV CX, 0FFh
L2: LOOP L2

MOV DX, 2005h

MOV AL, 40h

OUT DX, AL

MOV DX, 2031h

MOV AL, 03h

OUT DX, AL

MOV DX, 2005h

MOV AL, 60h

OUT DX, AL

MOV DX, 2031h

MOV AL, 03h

OUT DX, AL

MOV DX, 2065

MOV AL, 70h

OUT DX, AL

MOV DX, 2031h

MOV AL, 07h ; 7 seg

OUT DX, AL

MOV DX, 2005h

MOV AL, 78h

OUT DX, AL

MOV DX, 2005h

MOV AL, 7Ch

OUT DX, AL

MOV DX, 2005h

MOV AL, 7Eh

OUT DX, AL

MOV DX, 2005h

MOV AL, 7Fh

OUT DX, AL

MOV DX, 2006h

MOV AL, 02H

OUT DX, AL

MOV DX, 2007h

MOV AL, 04H

OUT DX, AL

MOV DX, 2008h

MOV AL, 02h

OUT DX, AL

MOV DX, 2009h

MOV AL, 01H

OUT DX, AL

MOV DX, 2032h

MOV AL, 01h

OUT DX, AL

MOV DX, 2009h

MOV AL, 03h

OUT DX, AL

MOV DX, 2032h

MOV AL, 03h

OUT DX, AL

MOV DX, 2009h

MOV DX, 07h

OUT DX, AL

MOV DX, 2032h

MOV AL, 07h

OUT DX, AL ; 7 seg


```

MOV DX, 2009h
MOV AL, 0Fh
OUT DX, AL
MOV DX, 2009h
MOV AL, 1Fh
OUT DX, AL
MOV DX, 2009h
MOV AL, 3Fh
OUT DX, AL
MOV DX, 2009h
MOV AL, 7Fh  ,m DOT
OUT DX, AL

MOV CX, 0FFh
L3: LOOP L3
MOV DX, 200Ah
MOV AL, 01h
OUT DX, AL
MOV DX, 200Bh
MOV AL, 01h
OUT DX, AL
MOV DX, 200Ch
MOV AL, 01h
OUT DX, AL
MOV DX, 200Dh
MOV AL, 01h
OUT DX, AL
MOV DX, 200Dh
MOV AL, 03h
OUT DX, AL

```

```

MOV DX, 200Dh
MOV AL, 07h
OUT DX, AL

MOV DX, 200Dh
MOV AL, 0Fh
OUT DX, AL

MOV DX, 200Dh
MOV AL, 1Fh
OUT DX, AL

MOV DX, 200Dh
MOV AL, 3Fh
OUT DX, AL

MOV DX, 200Dh
MOV AL, 7Fh
OUT DX, AL ; 7 Dot

MOV CX, 0FFh
L4: LOOP L4

MOV CX, 0FFh
MOV CX, 0h
MOV DX, 200Fh
MOV AL, 40h
OUT DX, AL

MOV DX, 200Fh
MOV AL, 60h
OUT DX, AL

MOV DX, 200Fh
MOV AL, 70h
OUT DX, AL

MOV DX, 200Fh
MOV AL, 78h
OUT DX, AL

```

MOV DX, 200Fh
MOV AL, 7Ch
OUT DX, AL
MOV DX, 200Fh
MOV AL, 7Eh
OUT DX, AL
MOV DX, 200Fh
MOV AL, 7Fh
OUT DX, AL
MOV DX, 2010h
MOV AL, 02h
OUT DX, AL
MOV DX, 2011h
MOV AL, 04h
OUT DX, AL
MOV DX, 2012h
MOV DX, AL
MOV AL, 02h
MOV DX, 2013h
MOV AL, 01h
~~MOV~~ OUT DX, AL
MOV DX, 2013h
MOV AL, 03h
OUT DX, AL
MOV DX, 2013h
MOV AL, 07h
OUT DX, AL
MOV DX, 2013h
MOV AL, 0Fh
OUT DX, AL
MOV DX, 2013h
MOV AL, 1Fh
OUT DX, AL

```

MOV DX, 2013h
MOV AL, 3Fh
OUT DX, AL
MOV DX, 20Bh
MOV AX, 7Fh ; MOV
OUT DX, AX
MOV CX, 0FFh
L5: LOOP L5
MOV DX, 2015h
MOV AL, 01h
OUT DX, AL
MOV DX, 2016h
MOV DX, 2016h
MOV AL, 01h
OUT DX, AL
MOV DX, 2017h
MOV AX, 001h
OUT DX, AX
MOV DX, 2018h
MOV AL, 01h
OUT DX, AL
MOV DX, 2018h
MOV AL, 03h
OUT DX, AL
MOV DX, 2018h
MOV AX AL, 07h
OUT DX, AL
MOV DX, 2018h
MOV AL, 0Fh
OUT DX, AL

```

```

MOV DX, 2018h
MOV AL, 1Fh
OUT DX, AL
MOV DX, 2018h
MOV AL, 3Fh
OUT DX, AL
MOV DX, 2018h
MOV AL, 3Fh
OUT DX, AL ; 7 dot Print Done

MOV CX, 0FFh
L1: LOOP L1

```

CODE :

```

MOV EX, 25d
MOV SI, 0
MOV DI, 0
MOV DX, 2070h
MOV AL, 04h
OUT DX, AL
MOV DX, 2030h
MOV AL, 3Fh
MOV DX, 2031h
MOV AL, 07h
OUT DX, AL
MOV DX, 2031h
MOV AL, 07h
OUT DX, AL

MOV CX, 0FFh
LO : LOOP LO

```

LOOP1:

```
MOV DX, INDEX[SI]
MOV AL, VALUE[DI]
OUT DX, AL
ADD SI, 2
INC DI
INC Count
CMP Count, 25
JE INITIAL
```

LOOP LOOP1

INITIAL:

```
MOV DI, 0
MOV CX, 25d
MOV Count, 0
INC Count 2
CMP Count 2, 25
JB LOOP1
```

```
MOV DX, 2070h
MOV AL, 00h
OUT DX, AL
MOV DX, 2030h
MOV AL, 00h
OUT DX, AL
MOV DX, 2031h
MOV AL, 00h
OUT DX, AL
MOV DX, 2032h
MOV AL, 00h
OUT DX, AL
```

```

INC MAINLOOP
MOV Count, 0
MOV Count, 20

MOV CX, 00FFh

L9: LOOP L9

CMP MAINLOOP
JB CODE

MOV CX, 25
MOV DX, 2000h
MOV AL, 00h

ClearDOT:
    OUT DX, AL
    INC DX
    LOOP CLEARDOT

RET

START ENDP
CSEG ENDS

END START

```