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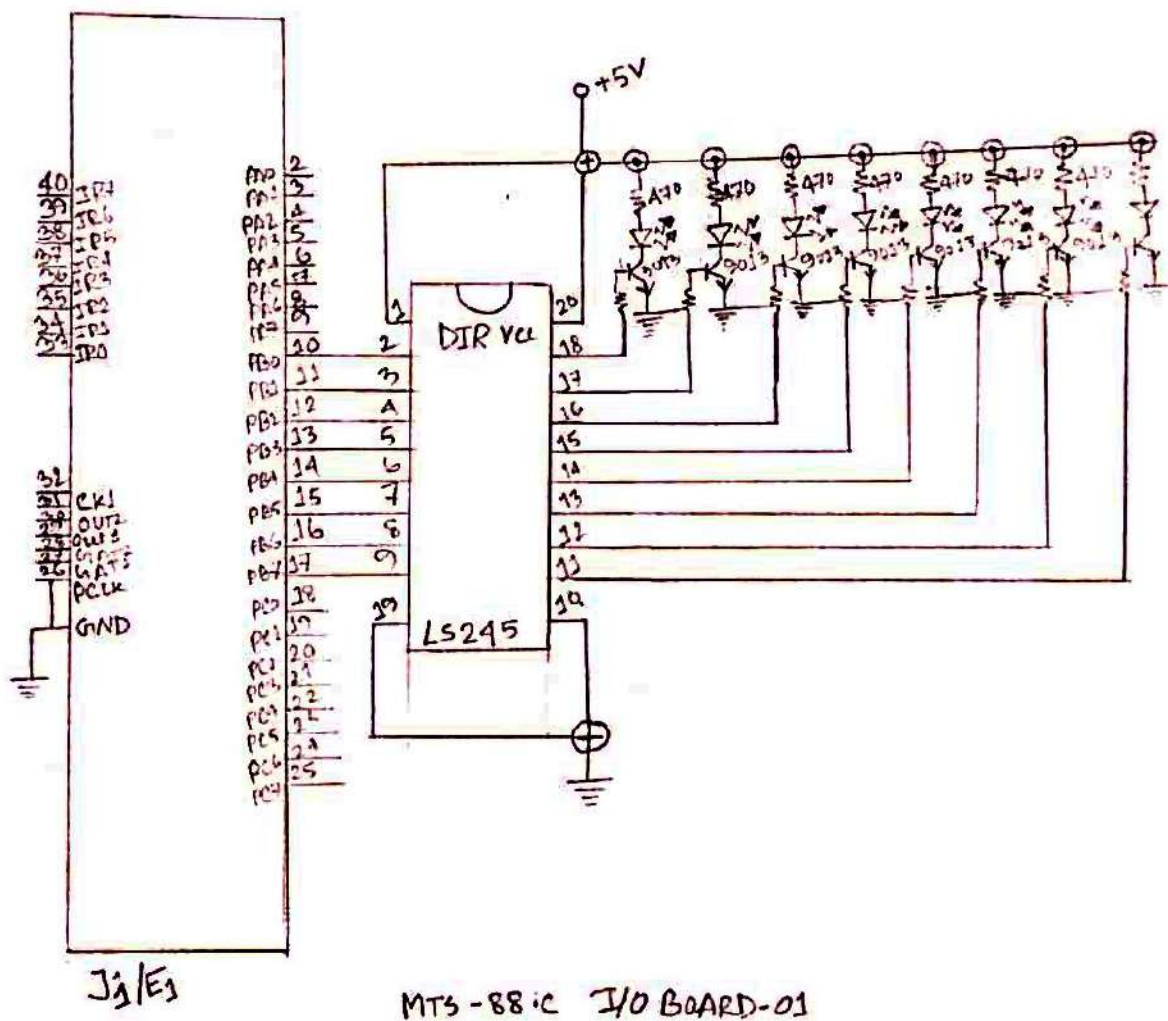
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Experiment No: 01

Experiment Name: Basic data transmission and reception (output)

Tools: MTS-88C, power supply, I/O Board-01, multiplug.

Circuit diagram:



Code:

```
MOV AL, 80
OUT 13, AL
MOV AL, FF
OUT 11, AL
HLT
```

Experiment result:

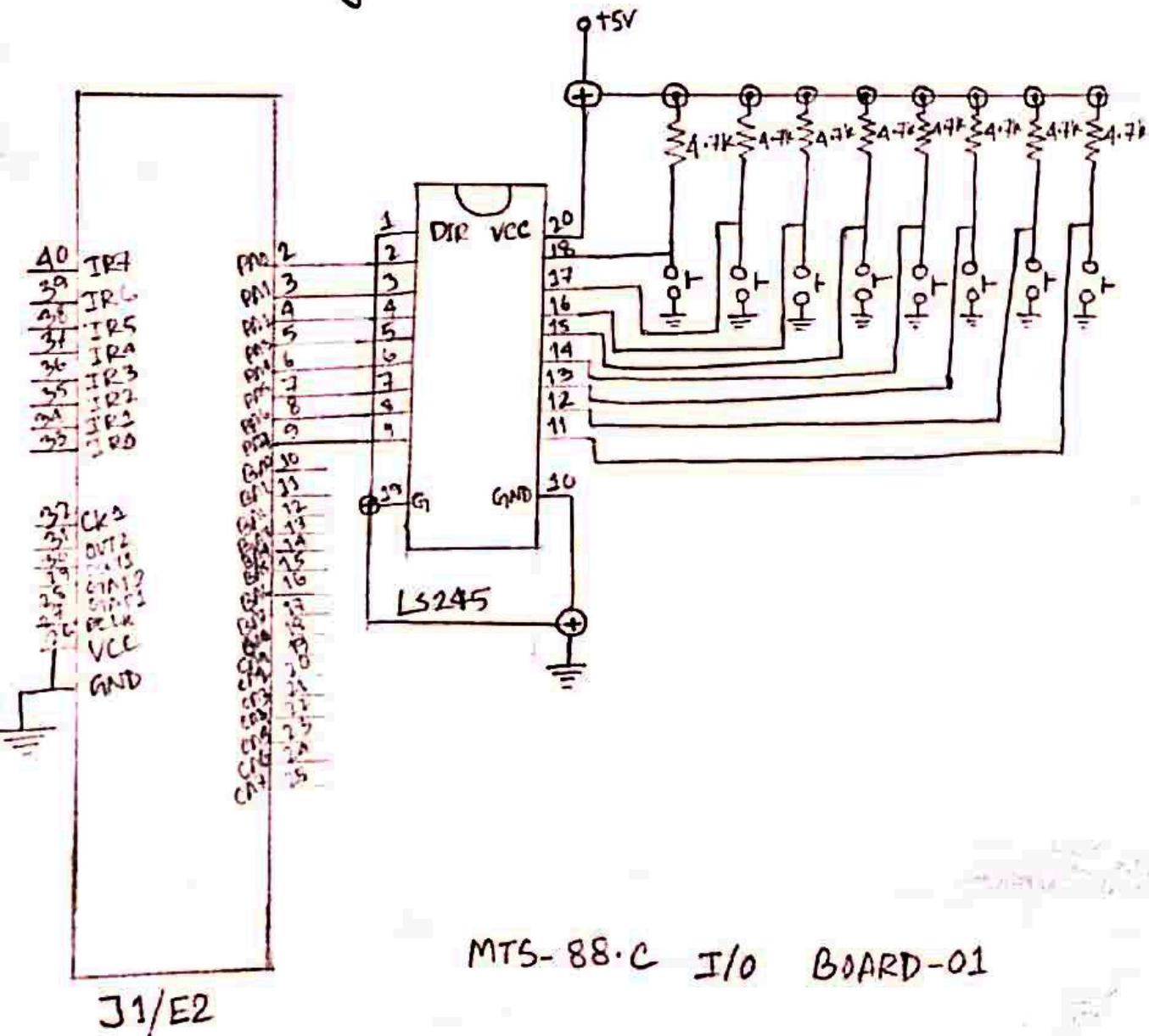
AL	LED7	LED6	LED5	LED4	LED3	LED2	LED1	LED0
1H	0	0	0	0	0	0	0	1
2H	0	0	0	0	0	0	1	0
4H	0	0	0	0	0	1	0	0
8H	0	0	0	0	1	0	0	0
10H	0	0	0	1	0	0	0	0
20H	0	0	1	0	0	0	0	0
40H	0	1	0	0	0	0	0	0
80H	1	0	0	0	0	0	0	0

Experiment No: 02

Experiment Name: Write & execute a machine language program in MTS 86 trainer board and show basic characteristics of IC 8255 by a simple output operation.

Experimental tools & materials: MTS-88.C, I/O Board-01, power supply, multiplex.

Circuit diagram:



Source Code:

```
MOV AL, 90  
OUT 13, AL  
IN AL, 10  
HLT
```

Experiment result:

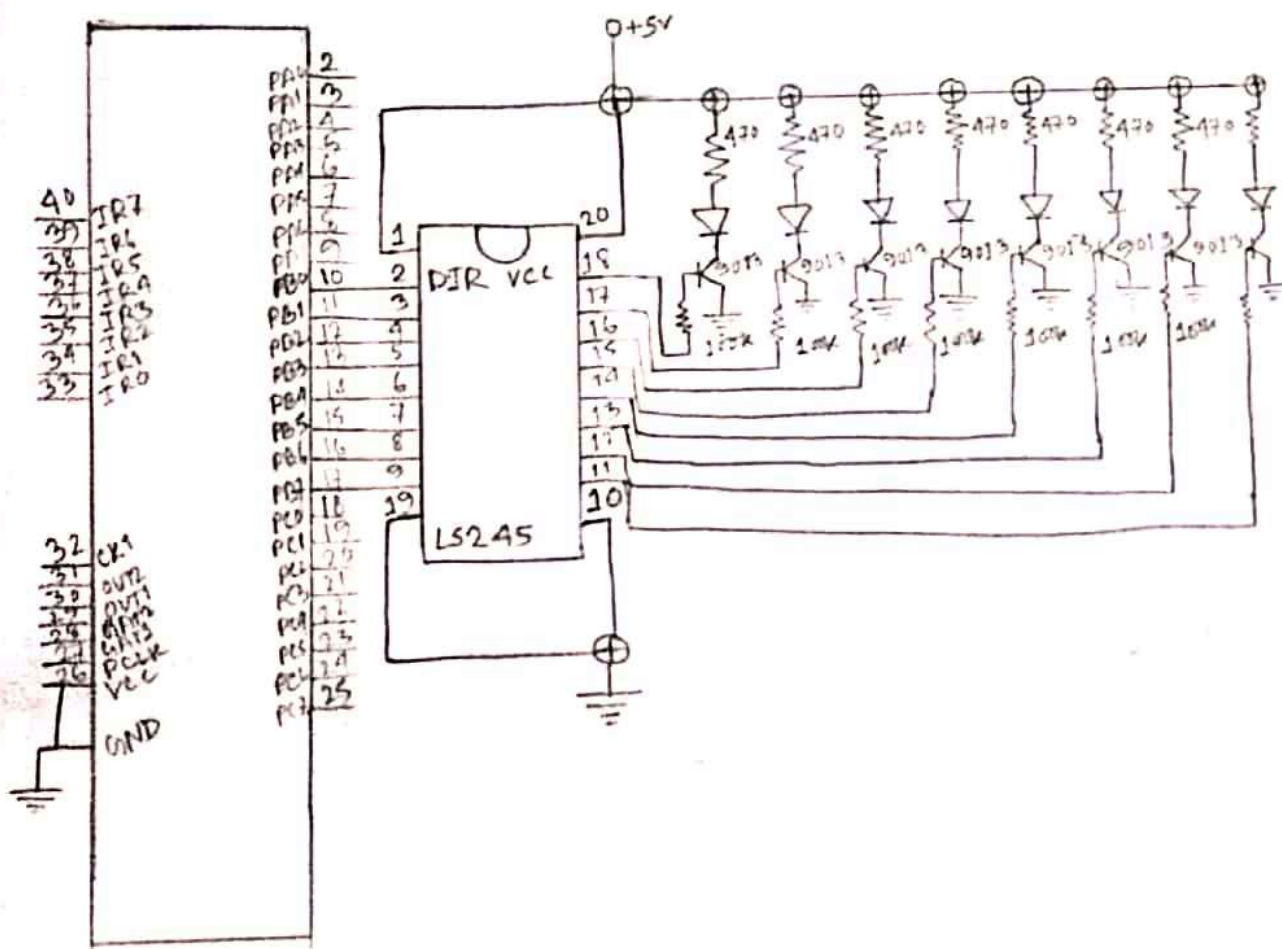
SW7	SW6	SW5	SW4	SW3	SW2	SW1	SW0	AL
ON	ON	ON	ON	ON	ON	ON	OFF	01H
ON	ON	ON	ON	ON	ON	OFF	ON	02H
ON	ON	ON	ON	ON	OFF	ON	ON	04H
ON	ON	ON	ON	OFF	ON	ON	ON	08H
ON	ON	ON	OFF	ON	ON	ON	ON	10H
ON	ON	OFF	ON	ON	ON	ON	ON	20H
ON	OFF	ON	ON	ON	ON	ON	ON	40H
OFF	ON	ON	ON	ON	ON	ON	ON	80H

Experiment No:03

Experiment Name: Write & execute a machine language program in MTS 86 trainer board and show basic characteristics of IC 8255 by a simple input output operation.

Experiment tools & materials: MTS-88.C, I/O Board-01 & power supply.

Circuit diagram:



MTS-88.C I/O BOARD-01

Source Code:

```
MOV AL,90  
OUT 13,AL  
IN AL,10  
OUT 11,AL  
HLT
```

Experiment result:

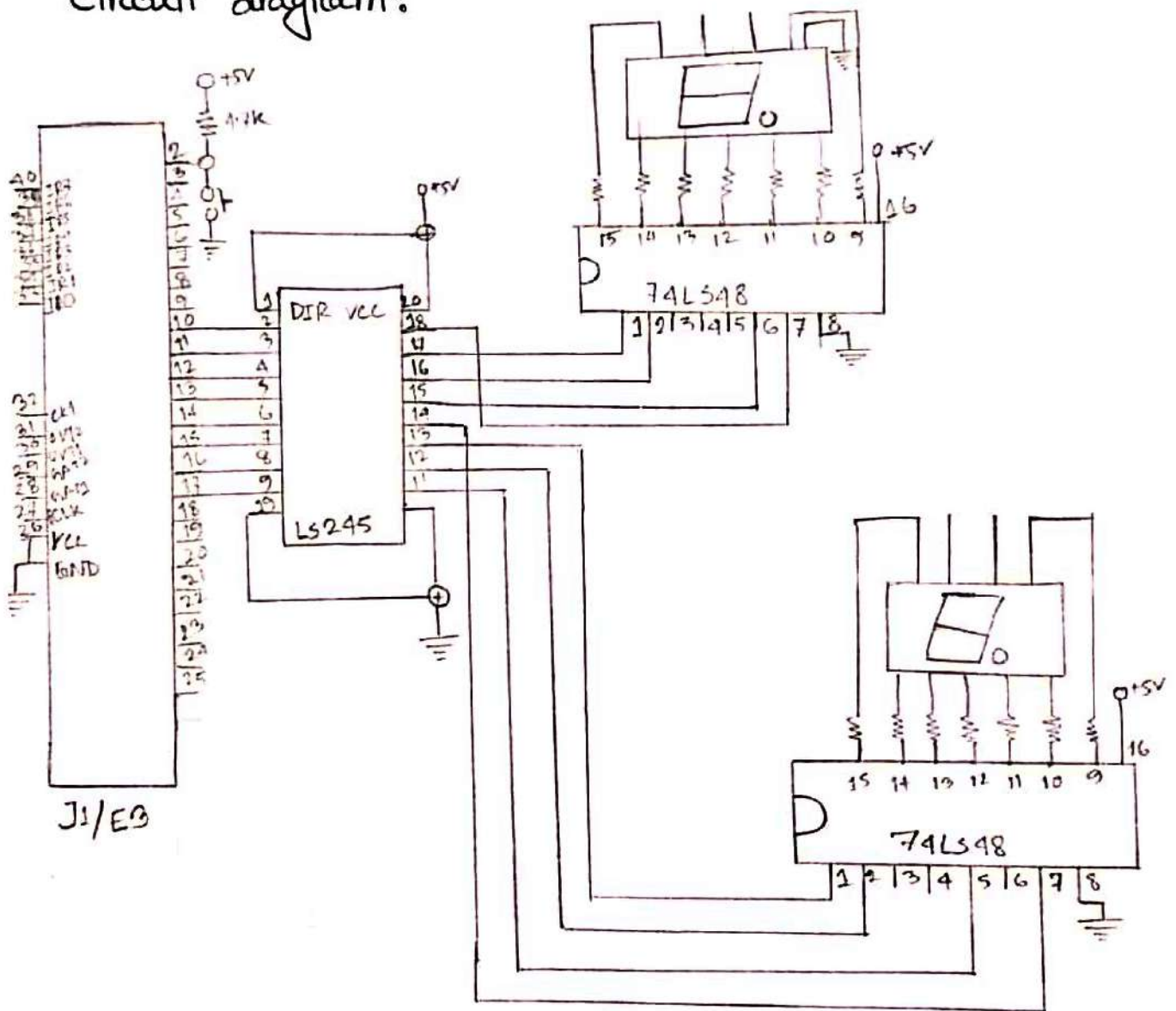
AL	LED7	LED6	LED5	LED4	LED3	LED2	LED1	LED0
AAH	1	0	1	0	1	0	1	0

Experiment No:04

Experiment Name: Write & execute a machine language program on MTS 86 trainer board and show basic characteristics of IC 8255 by a simple output operation.

Experiment tools & materials: MTS-88.C, I/O Board-02, power supply and multiplug.

Circuit diagram:



MTS-88.C I/O BOARD-02

Source Code :

```

XOR  AX,AX
MOV  AL,50
OUT  13,AL
IN   AL,10
TEST AL,01
JNE  0406
INC  AH
MOV  AL,AH
OUT  11,AL
MOV  CX,0010
MOV  BX,0500
DEC  BX
JNE  0419
LOOP 0416
JMP  0406
HLT

```

Experiment result: When the program begins to execute then the initial will be 0. Again press the tack switch, then section 7 of the B port will be give the following readings:

VIII RESULT

SWITCH 7 SEGMENT LED DISPLAY

DISPLAY 1

0
0
0
0
0
0
0
0

F

DISPLAY 2

1
2
3
4
5
6
7

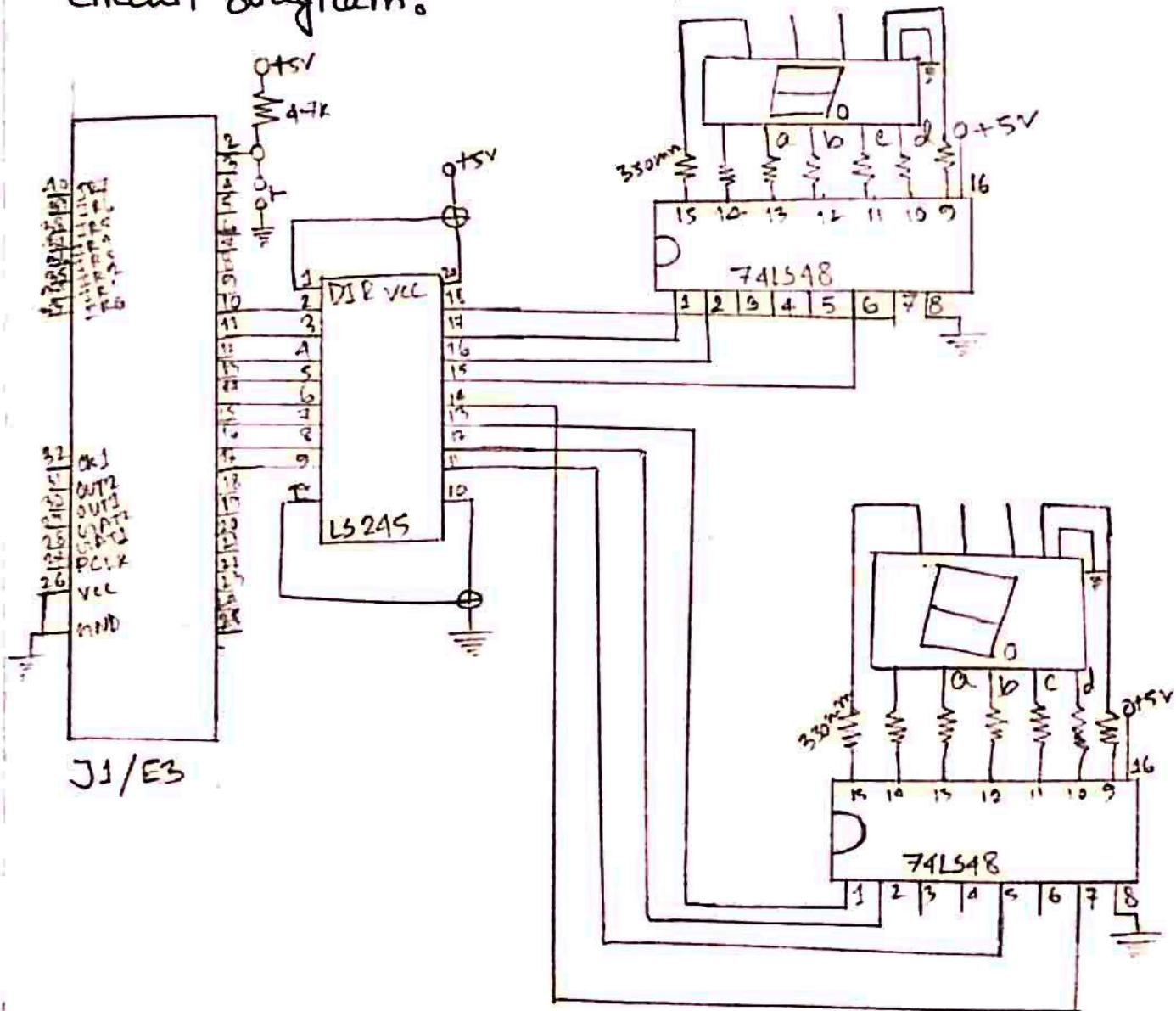
F

Experiment NO: 05

Experiment Name: Write and execute machine language program in MTS86 trainer board and show hexadecimal values (1,3,5,...F) on the seven segment Display.

Tools: MTS-88.C, I/O Board-02, power supply, multiplug.

Circuit diagram:



MTS-88.C I/O BOARD-02

Code:

```

MOV  AX,00
MOV  AL,90
OUT  13,AL
IN   AL,10
TEST AL,01
JNE  0407
INC  AH
MOV  AL,00
MOV  AL,AH
OUT  11,AL
INC  AH
MOV  CX,0010
MOV  BX,0500
DEC  BX
JNE  041E
LOOP 041B
JMP  0407
HLT

```

Experiment result:

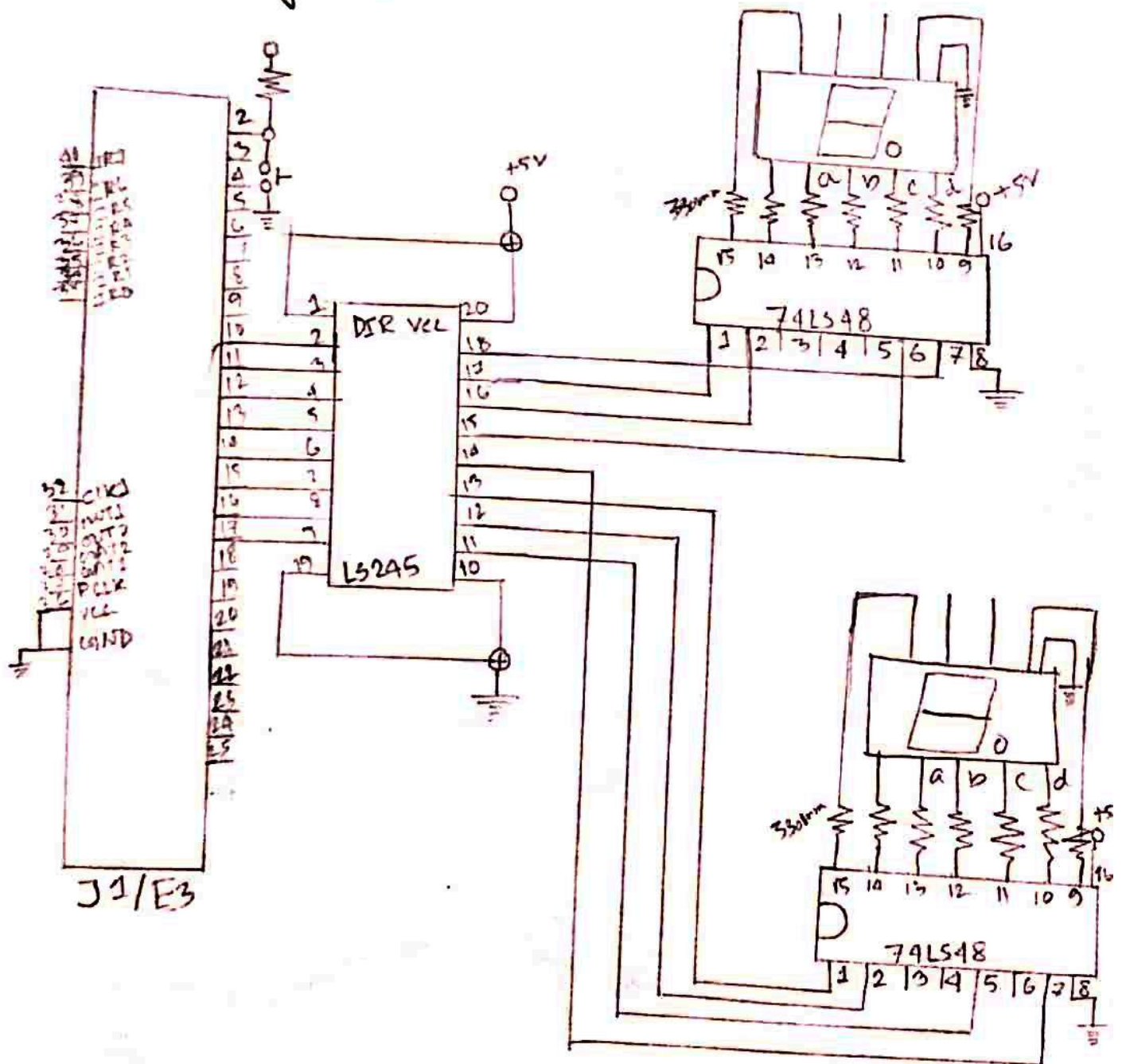
SWITCH 7 SEGMENT LED DISPLAY	
DISPLAY1	DISPLAY2
0	1
0	3
0	5
0	7
0	F

Experiment No: 06

Experiment Name: Write and execute machine language program in MTS 86 trainer board and show hexadecimal even values (0, 2, 4, ..., E) on the seven segment Display.

Tools: MTS-88.C, I/O Board-02, power supply, multiplex.

Circuit diagram:



MTS-88.C I/O BOARD-02

Code:

```
MOV AX,00
MOV AL,90
OUT 13,A1
IN AL,10
TEST AL,01
JNE 0407
INC AH
INC AH
MOV AL,AH
OUT 11,AL
MOV CX,0010
MOV BX,0500
DEC BX
JNE 041C
LOOP 0419
JMP 0407
HLT
```

Experimental result:

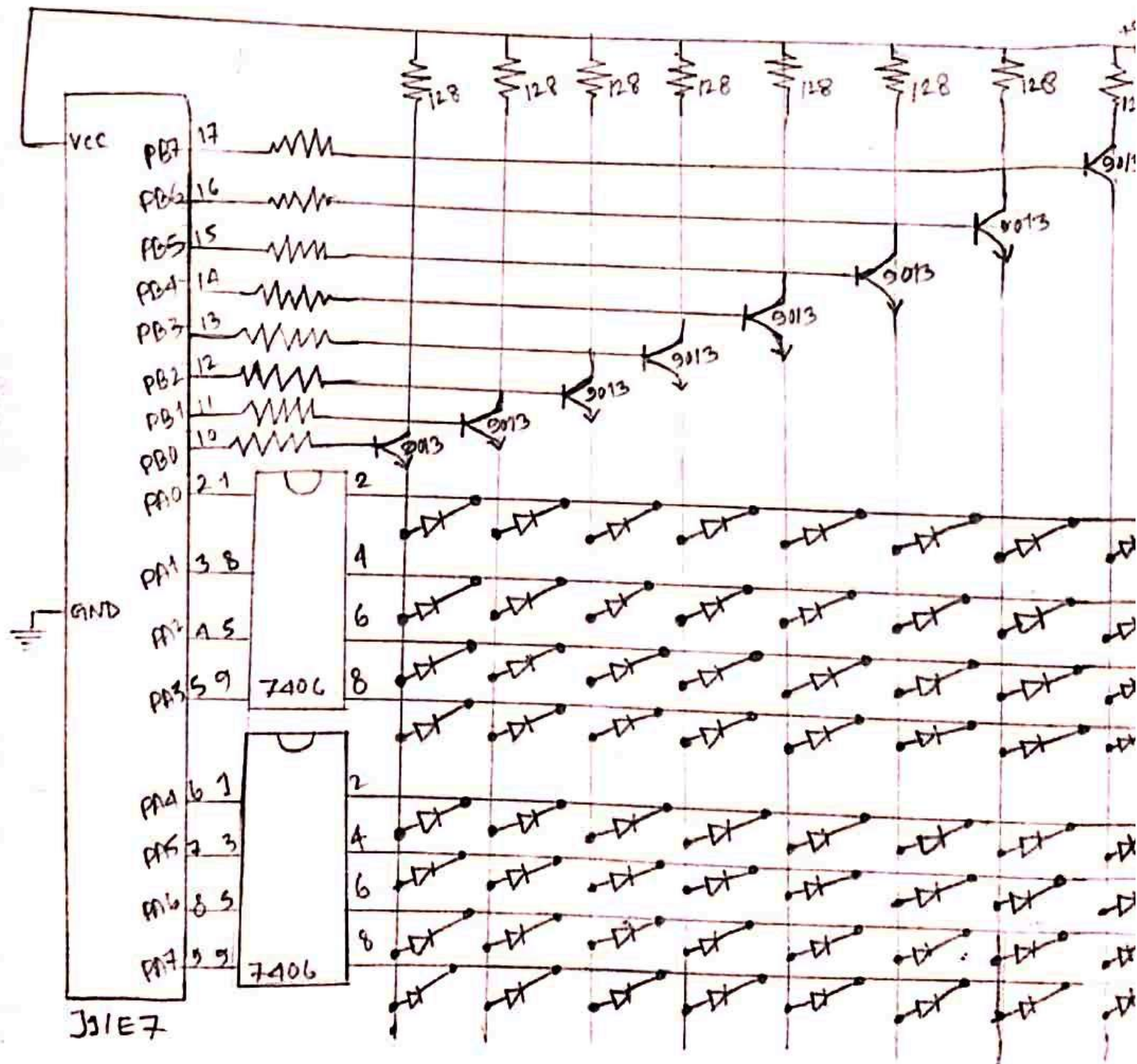
SWITCH 7 SEGMENT LED DISPLAY	
DISPLAY1	DISPLAY2
0	2
0	4
0	6
0	8
	⋮
0	E

Experiment No: 07

Experiment Name: Write and execute machine language program in MTS 86 trainer board and show LED matrix character on LED matrix character display.

Experimental tools and materials: MTS-88.C, I/O Board-03, power supply, multiplug.

Circuit diagram:



MTS-88.C I/O BOARD-03

Source Code:

```

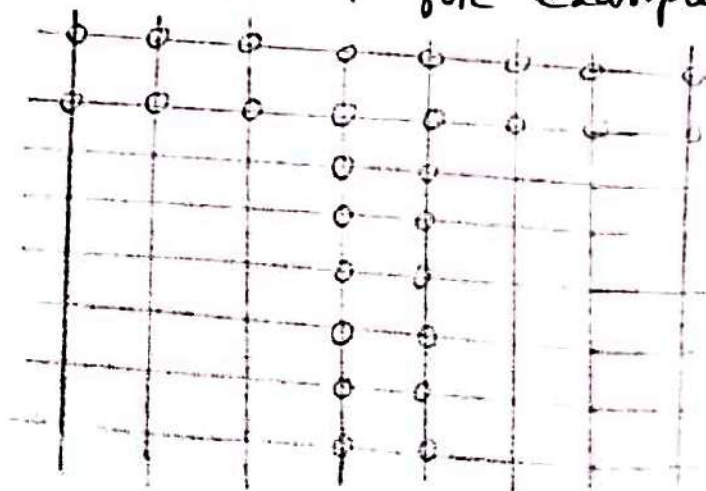
MOV AL,80
OUT 13,AL
MOV CX,0008
MOV AL,01
MOV BX,0500
OUT 11,AL
PUSH AX
ADD BX,CX
MOV AL,[BX]
OUT 10,AL
PUSH CX
MOV CX,0080
NOP
LOOP 0419
POP CX
POP AX
ROL AL,01
LOOP 0409
JMP 040A

```

• Experiment result :

1. CO, CO, CO, FF, FF, CO, CO, CO = T
2. 00, 76, 91, 91, 91, 91, 4F, 00 = S

b. Taking the character 'T' for example.

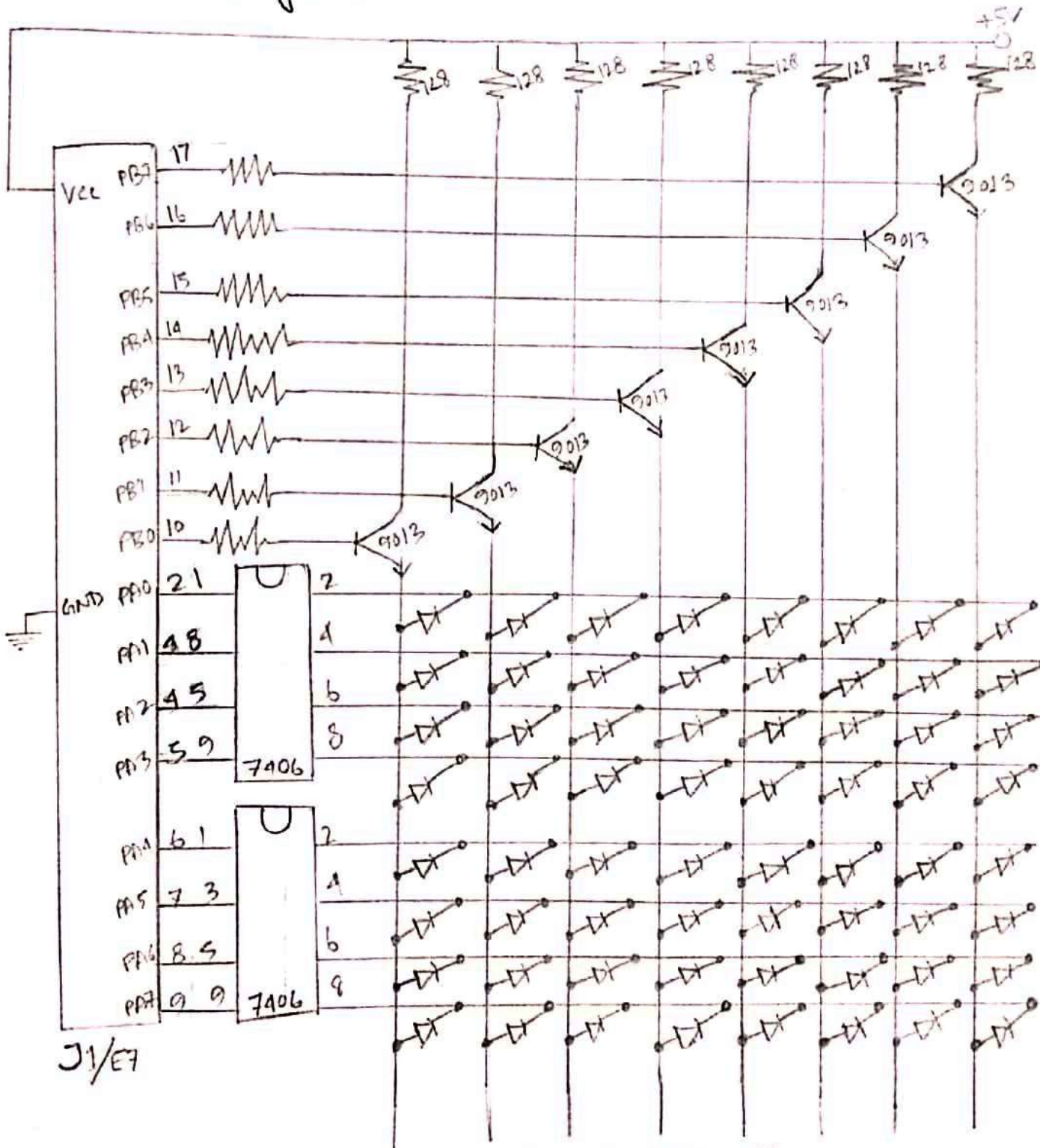


Experiment No:08

Experiment Name: Write and execute a machine language program in MTS86 trainer board and show LED matrix control, ON/OFF, flash, shift.

Experimental tools and materials: MTS-88°C, I/O board-03, power supply, multiplug.

Circuit diagram:



MEMO TO THE BOARD-03

Source Code:

```

MOV AL,80
OUT 13,AL
MOV AL,00
OUT 11,AL
OUT 10,AL
MOV CX,F000
NOP
LOOP 040D
MOV AL,FF
OUT 11,AL
OUT 10,AL
MOV CX,F000
NOP
LOOP 0419
JMP 0404
    
```

Experimental result:

