ASSIGNMENT – II

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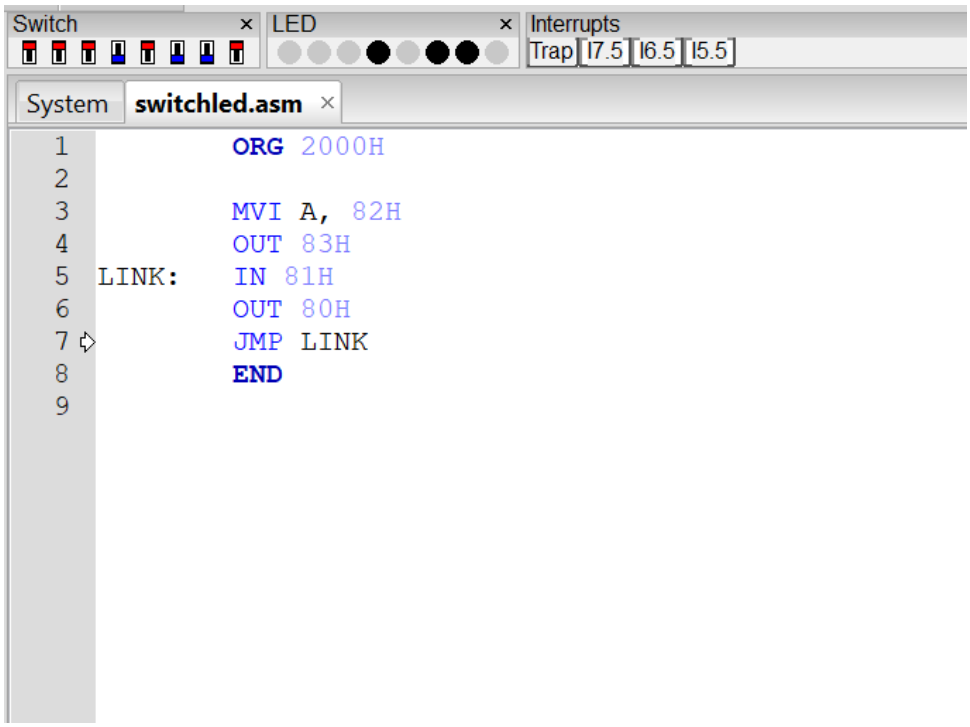
STREAM: CSE-A

ROLL NUMBER: 1951007

SUBJECT: MICROPROCESSORS LAB

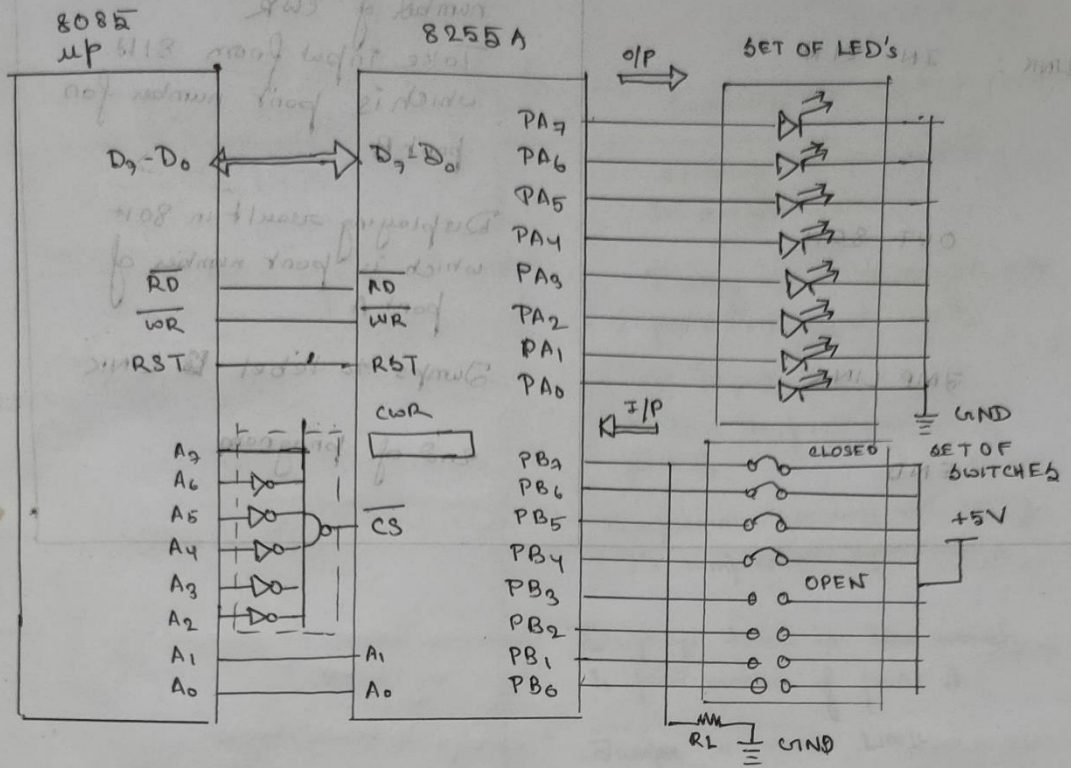
Problem 1a: Write an ALP of 8085 to glow the LEDs connected in Port A, following the status of Switches connected in Port B of a PPI 8255a. Draw the block diagram.

Solution:



8) a) Write an ALP of 8085 to glow the LED's connected in port A, following the status of switches connected in port B of PPI 8255A. Draw the block diagram

Sol:-



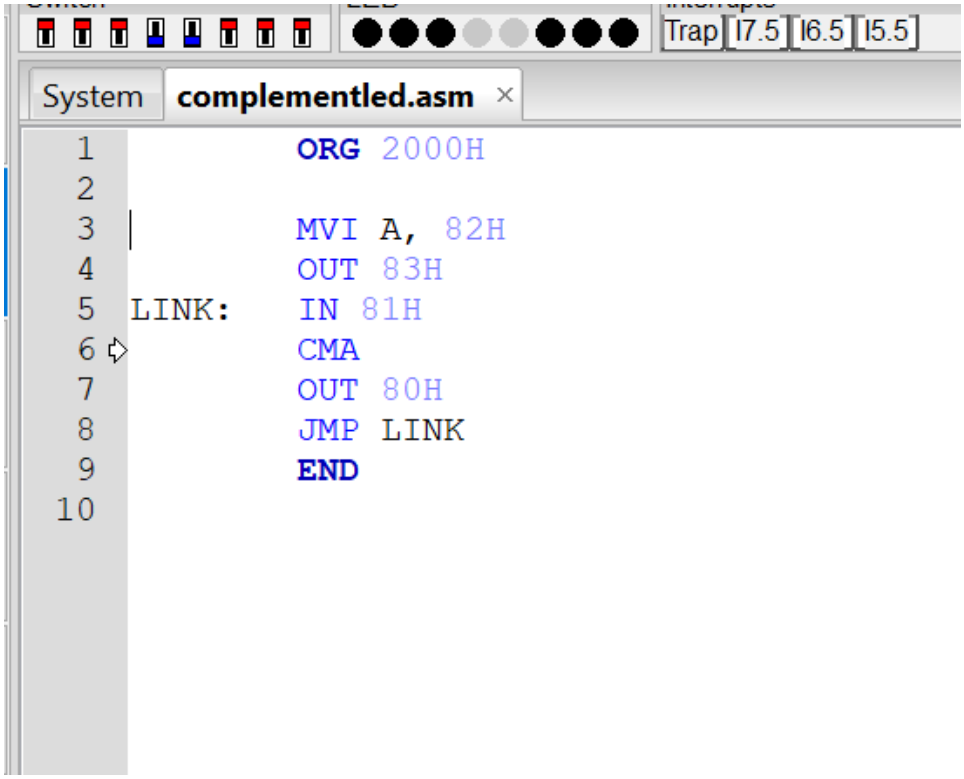
BLOCK DIAGRAM

port A ← 80H
port B ← 81H
port C ← 82H
CWR ← 83H

MNEMONICS	COMMENTS
MVI A, 82H	Load control word in accumulator
OUT 88H	Putting value of A in port number of CWR
LINK : IN 81H	Take input from 81H which is port number for port B
OUT 80H	Displaying result in 80H which is port number of port A
JMP LINK	Jumps to label LINK
END	end of program

Problem 1b: Write an ALP of 8085 to glow the LEDs connected in Port A, in complemented fashion of the status of Switches connected in Port B of a PPI 8255a.

Solution:



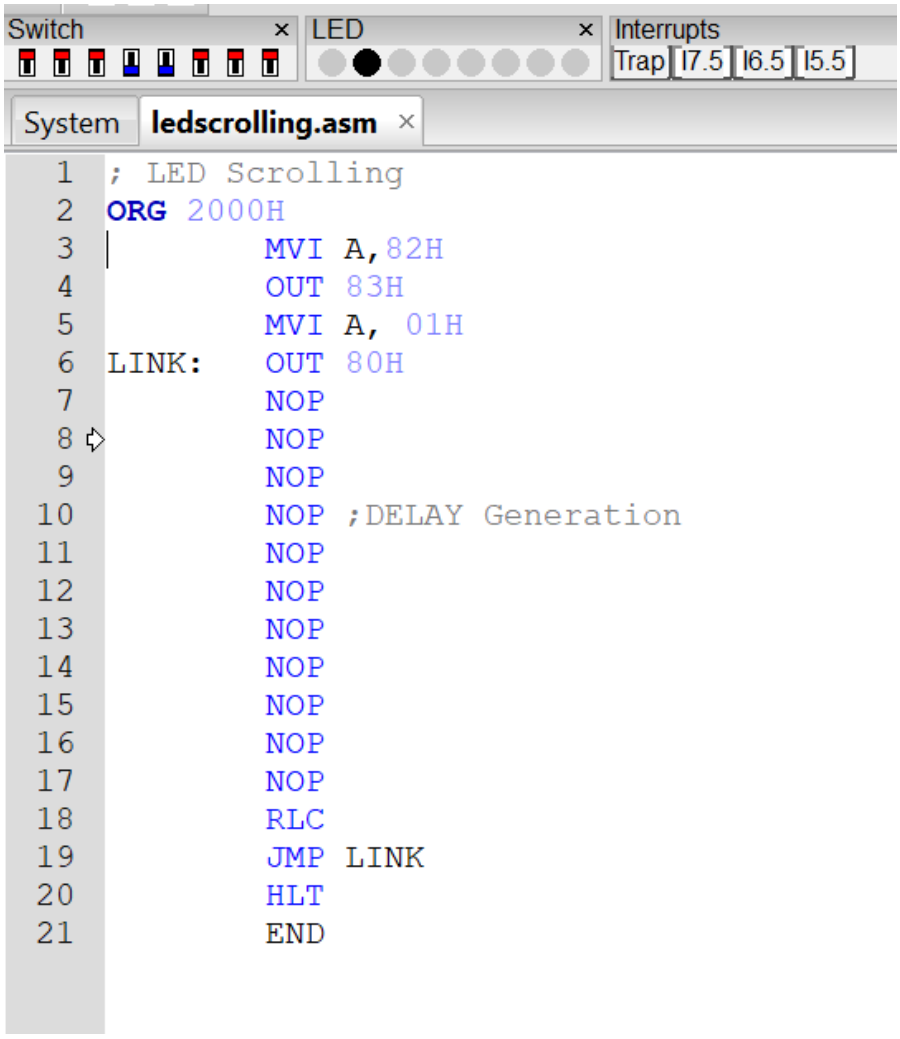
Q1) b) Write an ALP of 8085 to glow the LEDs connected in port A in complemented fashion of the status of switches connected in port B of a PPI 8255A.

Sol:-

MNEMONICS	COMMENTS
MVI A, 82H	Loading control word in accumulator
OUT 83H	Putting value in reg A into port number of CWR
LINK: IN 81H	Take input from 81H which is the port number of port B
CMA	Complements accumulator using 1's complement operation
OUT 80H	Displays result in 80H which is port number of port A
JMP LINK	Jumps to label LINK
END	End of program

Problem 2a: Write an ALP of 8085 for the scrolling of LEDs connected in Port A of a PPI 8255a.

Solution:




```
1  ; LED Scrolling
2  ORG 2000H
3          MVI A,82H
4          OUT 83H
5          MVI A, 01H
6  LINK:   OUT 80H
7          NOP
8          NOP
9          NOP
10         NOP ;DELAY Generation
11         NOP
12         NOP
13         NOP
14         NOP
15         NOP
16         NOP
17         NOP
18         RLC
19         JMP LINK
20         HLT
21         END
```

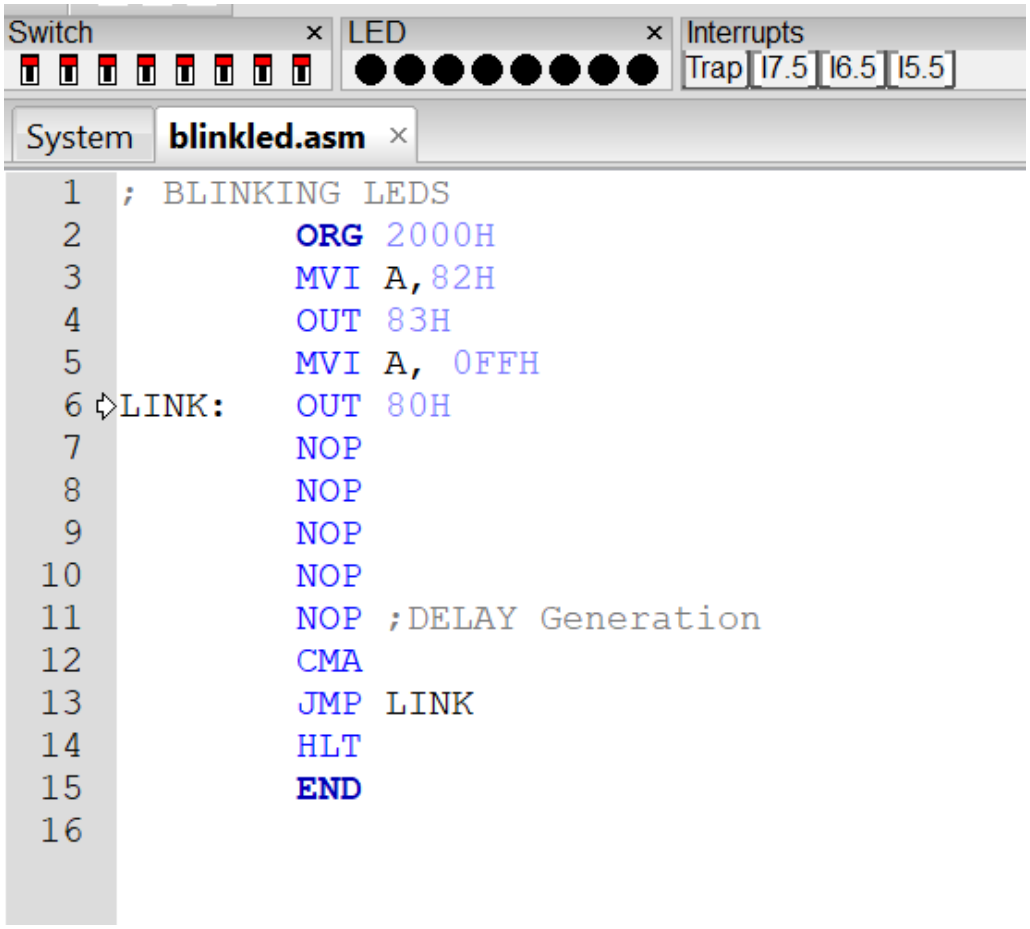
82)

a) Write an ALP of 8085 for scrolling of LEDs, connected in port A of PPI 8255A.

MNEMONICS	COMMENTS
MVI A, 82H	Load control word in accumulator
OUT 83H	Putting value from reg A into CWR
MVI A, 01H	Loading 01 H in accumulator
LINK: OUT 80H	Putting value from reg A into 80H which is address of port A
NOP	
NOP	Generate delay
NOP	
RLC	Rotates contents of accumulator left by 1-bit
JMP LINK	Jumps to label link
HLT	Ends of program

Problem 2b: Write an ALP of 8085 for the blinking of LEDs connected in Port A of a PPI 8255a.

Solution:




```
1  ; BLINKING LEDS
2          ORG 2000H
3          MVI A,82H
4          OUT 83H
5          MVI A, 0FFH
6  LINK:   OUT 80H
7          NOP
8          NOP
9          NOP
10         NOP
11         NOP ;DELAY Generation
12         CMA
13         JMP LINK
14         HLT
15         END
16
```

9) b) Write an ALP of 8085 for blinking of LEDs connected in port A of PPI 8255A.

MNEMONICS	COMMENTS
MVI A, 82H	Load CW into reg A
OUT 83H	Loads contents of reg A into CWR
MVI A, OFFH	Loads value FFH in reg A
LINK: OUT 80H	Loads contents of reg A in 80H which is port address of port A
NOP NOP NOP NOP NOP	Generate Delay
CMA	Complements the contents of accumulator using 1's complement operation
JMP LINK	Jumps to label LINK
HLT	Terminate
END	End of program