

# ASSIGNMENT – II

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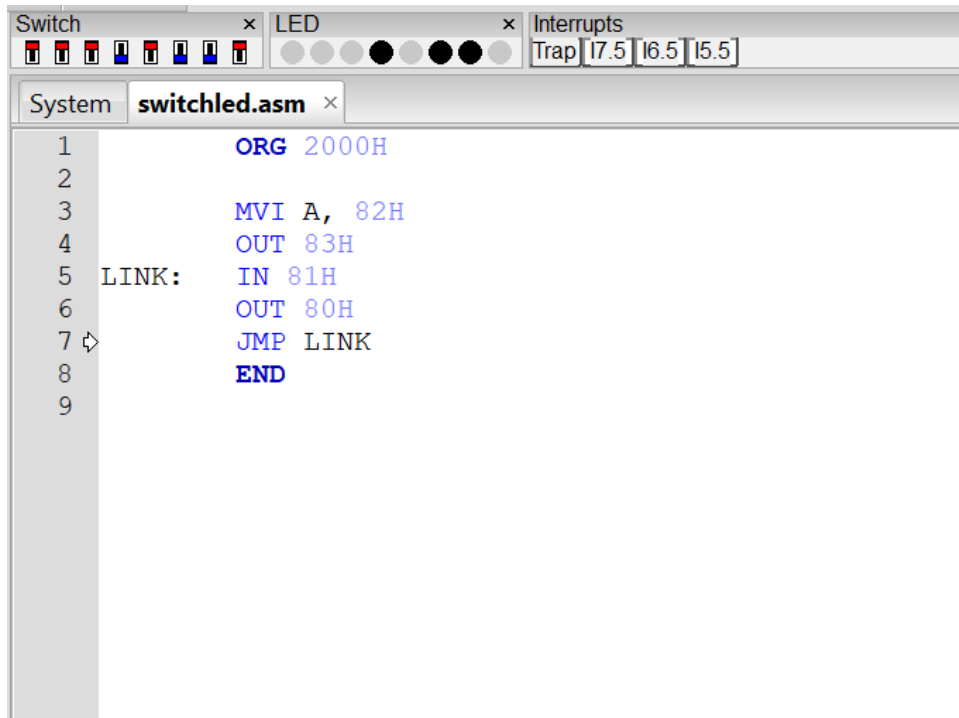
STREAM: CSE-A

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.

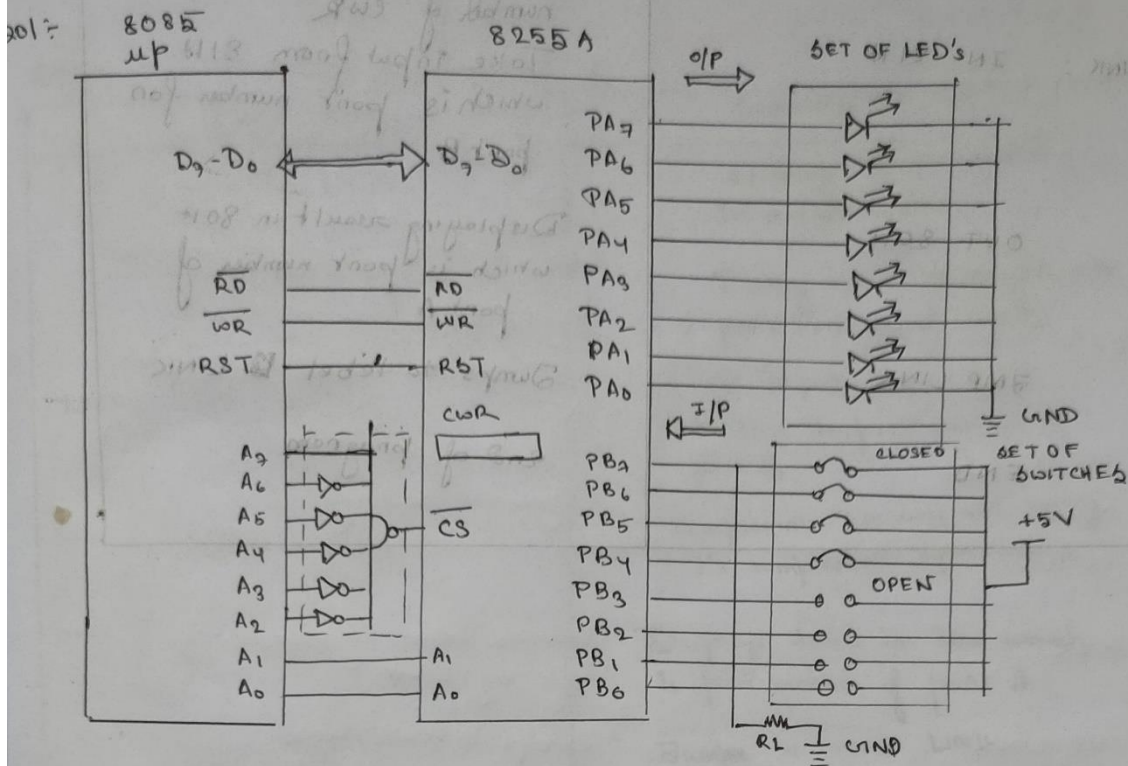
Solution:



The screenshot shows a software simulator for the 8085 microprocessor. At the top, there are three status bars: 'Switch' with 8 toggle switches (4 red, 4 blue), 'LED' with 8 indicator lights (4 grey, 4 black), and 'Interrupts' with 'Trap' and three numerical fields (17.5, 16.5, 15.5). Below these is a 'System' tab with a file named 'switchled.asm'. The assembly code is as follows:

```
1      ORG 2000H
2
3      MVI A, 82H
4      OUT 83H
5 LINK: IN 81H
6      OUT 80H
7      JMP LINK
8      END
9
```

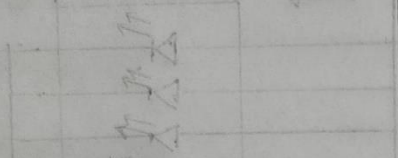
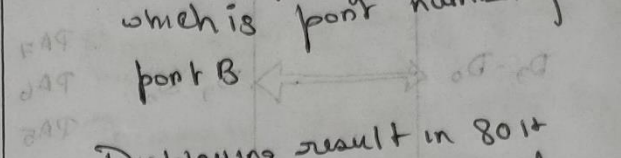
a) Write an ALP of 8085 to glow the LED's connected in port A, following the status of switches connected in port B of a PPI 8255A. Draw the block diagram



Block Diagram

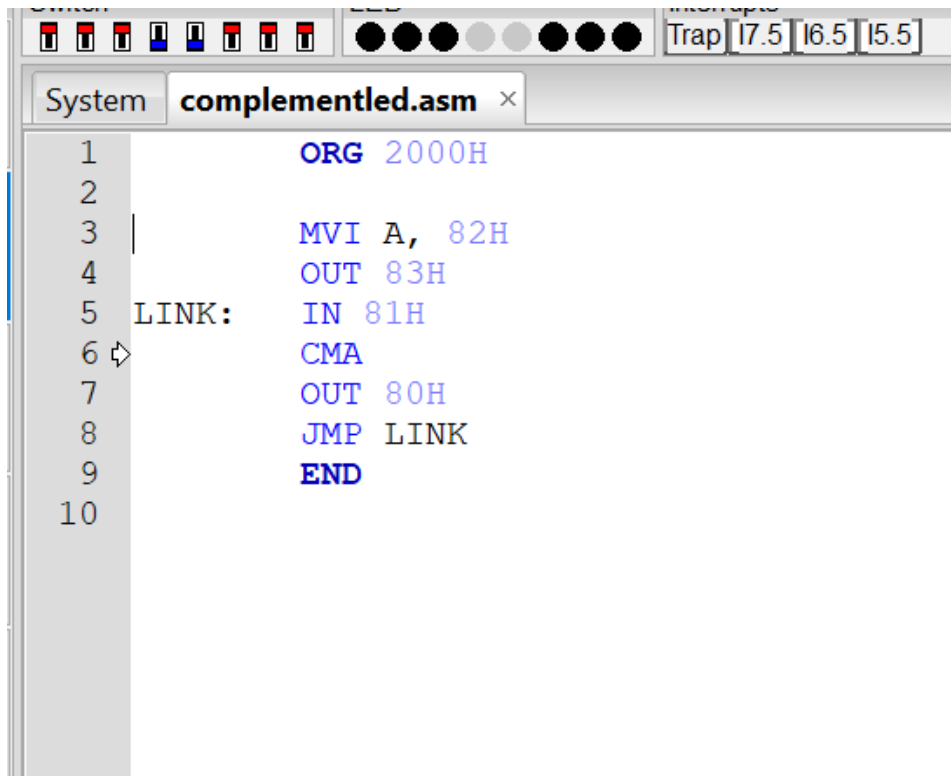
port A ← 80H  
port B ← 81H

port C ← 82H  
CWR ← 83H

MNEMONICS	COMMENTS
MVI A, 82H	Load control word in accumulator
OUT 82H	Putting value of A in port number of 82H
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:



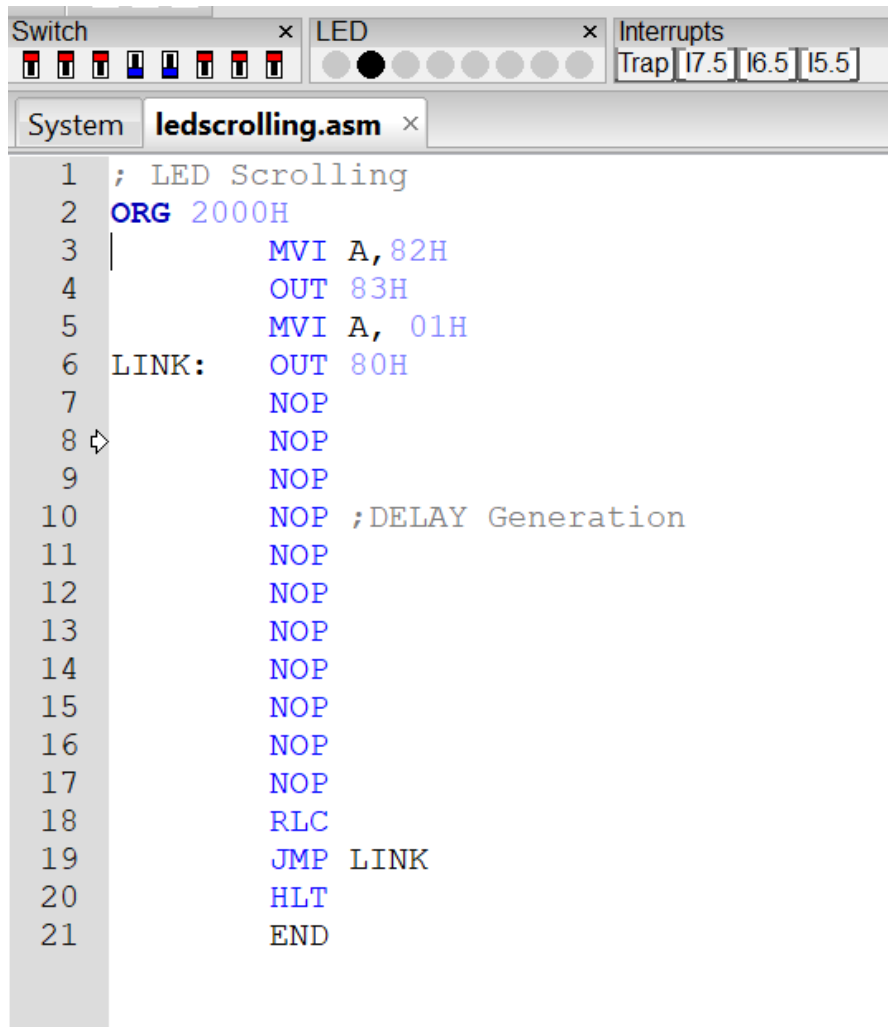
```
1      ORG 2000H
2
3      MVI A, 82H
4      OUT 83H
5  LINK: IN 81H
6      CMA
7      OUT 80H
8      JMP LINK
9      END
10
```

Q. 51) 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.

MINEMONICS	COMMENTS
MVI A, 82H	Loading control word in accumulator
OUT 82H	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

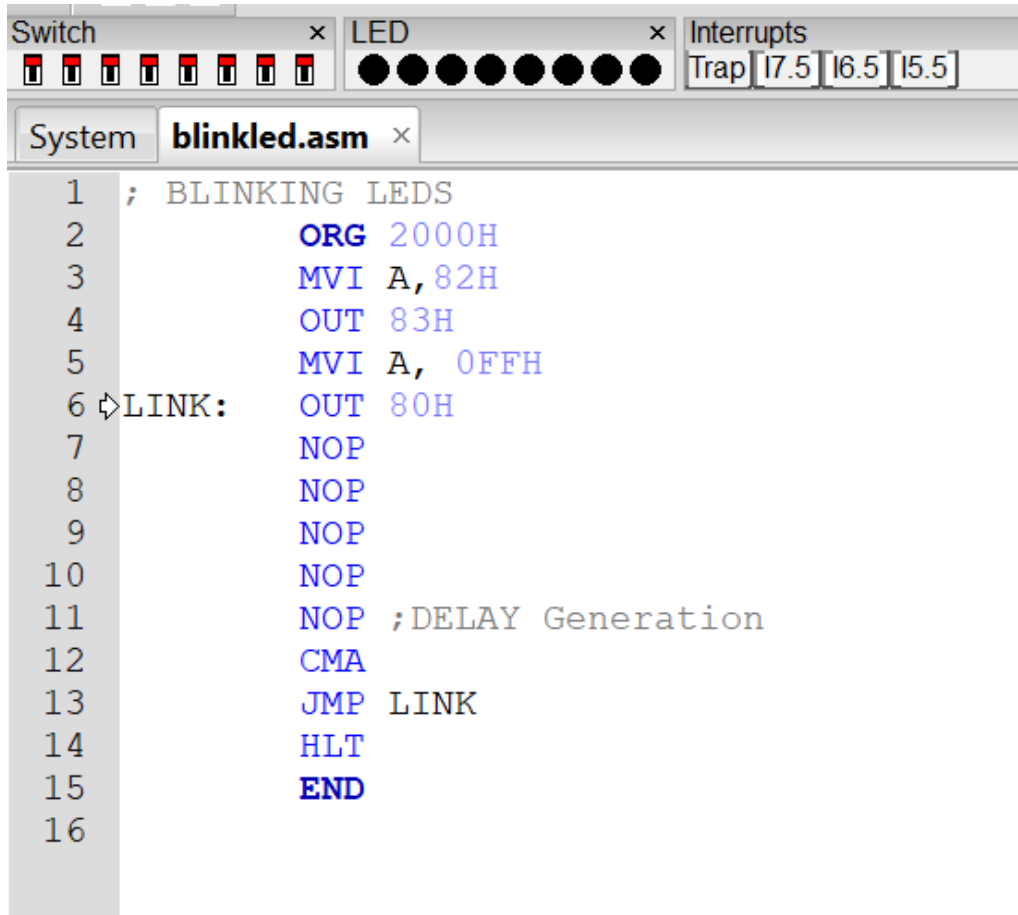
Q7 Write an ALP of 8085 for scrolling of LEDs, connected in port A of PPI 8255A.

MNEMONICS	COMMENTS
MVI A, 82H	Load control word in accumulator
OUT 82H	Putting value from reg A into CWR
MVI A, 01H	Loading 01H 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	End of program



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

Solution:



The screenshot shows a software interface for an 8085 microprocessor simulation. At the top, there are three status bars: "Switch" with 8 red LEDs, "LED" with 8 black LEDs, and "Interrupts" with "Trap" set to 17.5, and I7.5, I6.5, and I5.5. Below these is a "System" tab with a file named "blinkled.asm". The assembly code is as follows:

```
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
```

Q7 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 82H	<del>Load</del> Loads contents of reg A into CWR
MVI A, 0FFH	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