CSE 360_Sec03 ID: 19101077

Assignment -02

Ans. To the Q. No. 1

Part-1:

a) The mouse and the Graphics Tablet is simple input device. So, we need simple I/O mode of IC 82C55. Mode-1 is the I/O mode of this IC for both port-A&B.

To activave Port A and B the control word will be-

D7	D6	D5	D4	D3	D2	D1	D0
1	0	1	1	1	1	1	1

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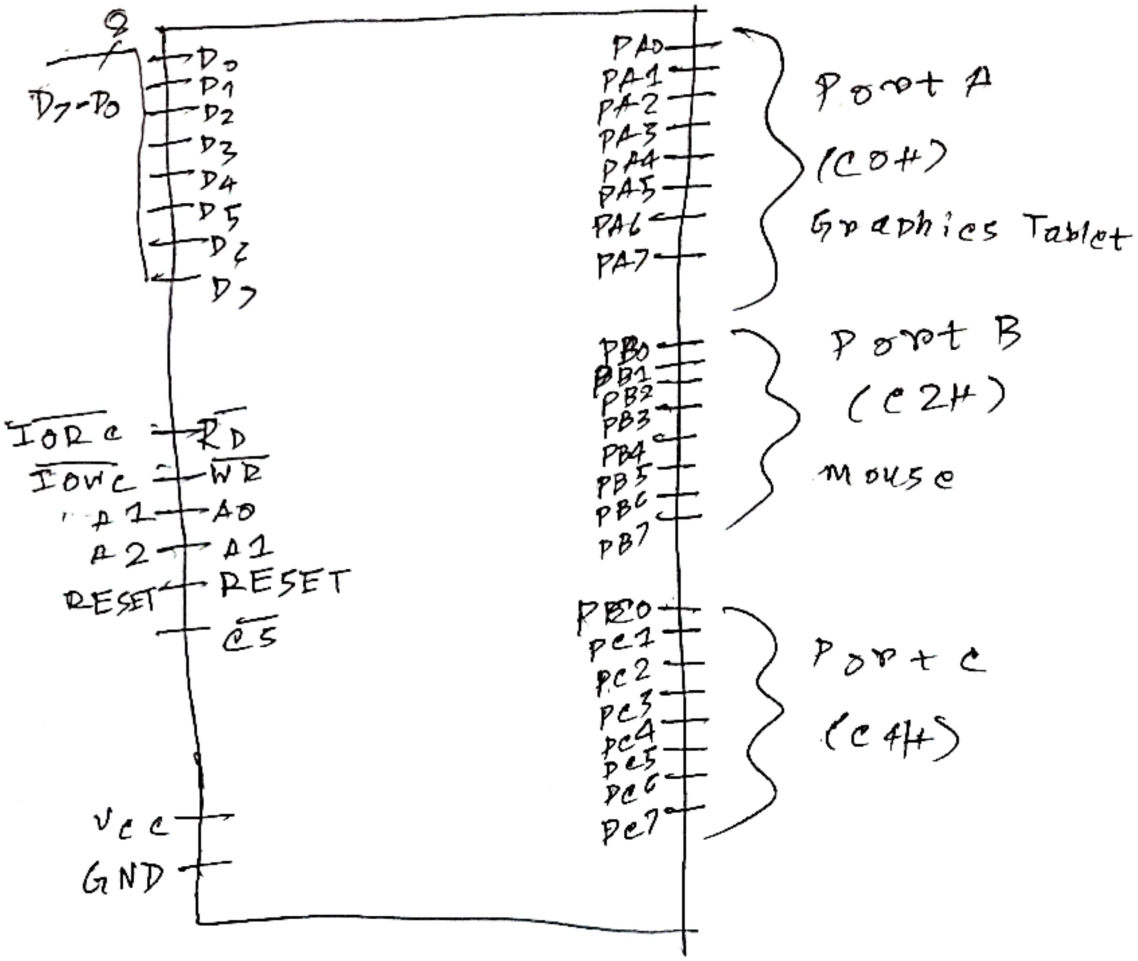
b)



Part-2:

a) Ic 8255 is taking input from the graphics tablet by tapping a picture. So the graphic tablet is connected with port-A.

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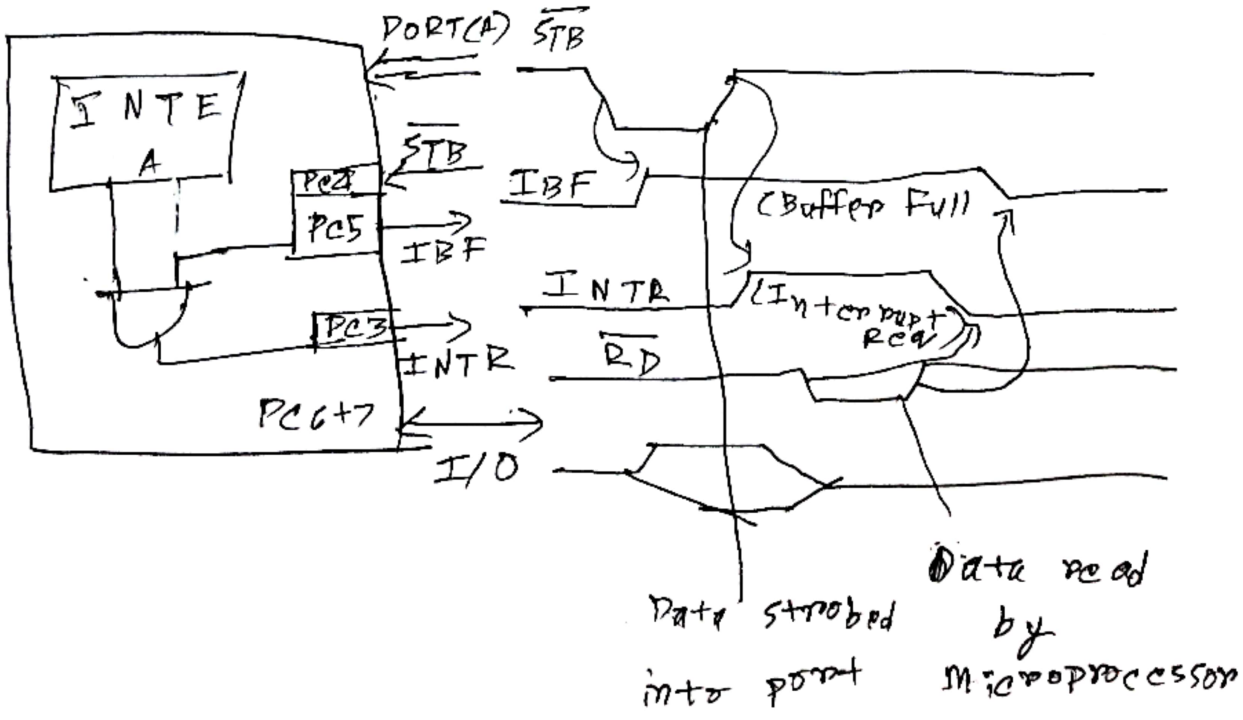
Port-A is functioning as latch input device. Here external data stored in the port until the microprocessor is ready.

$\overline{STB}$ → The stored input loads data into the port to latch on a 0 to 1 transition

b) Mode-1 Port-A: (Timing diagram)



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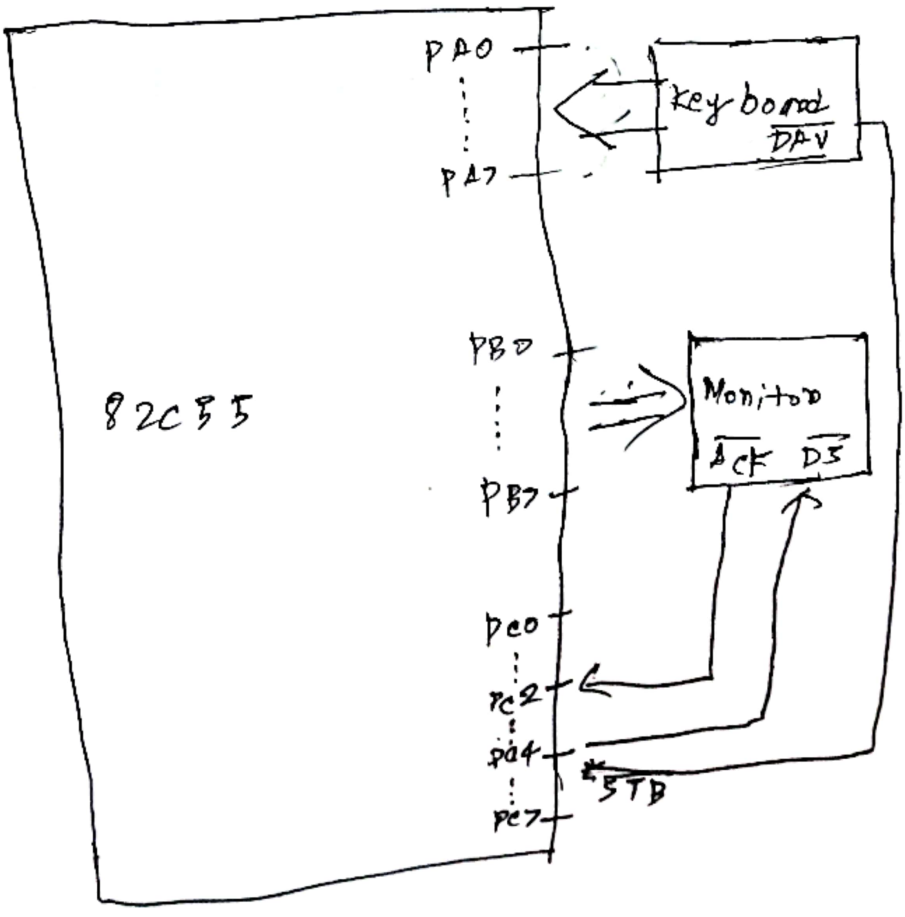
Ans. To The Q. No. 2

a) Port A is connected with keyboard and port B is connected with monitor of the 82c55 Ic.

So the control bites,

D7	D6	D5	D4	D3	D2	D1	D0
1	0	1	1	1	0	0	0

b)



c) The 8255 IC will take input if we pressed the 'B' key on the keyboard

Step-1:

Port A will function for input device, Here pin $\overline{STB_A}$ will be given from the keyboard

Step-2: In port A pin-5 IBF will send signal to 8255 IC to block input so that it doesn't receive anymore data.

Step-3: 8255 IC will sent INTR=1 signal to MPU for input from port C3

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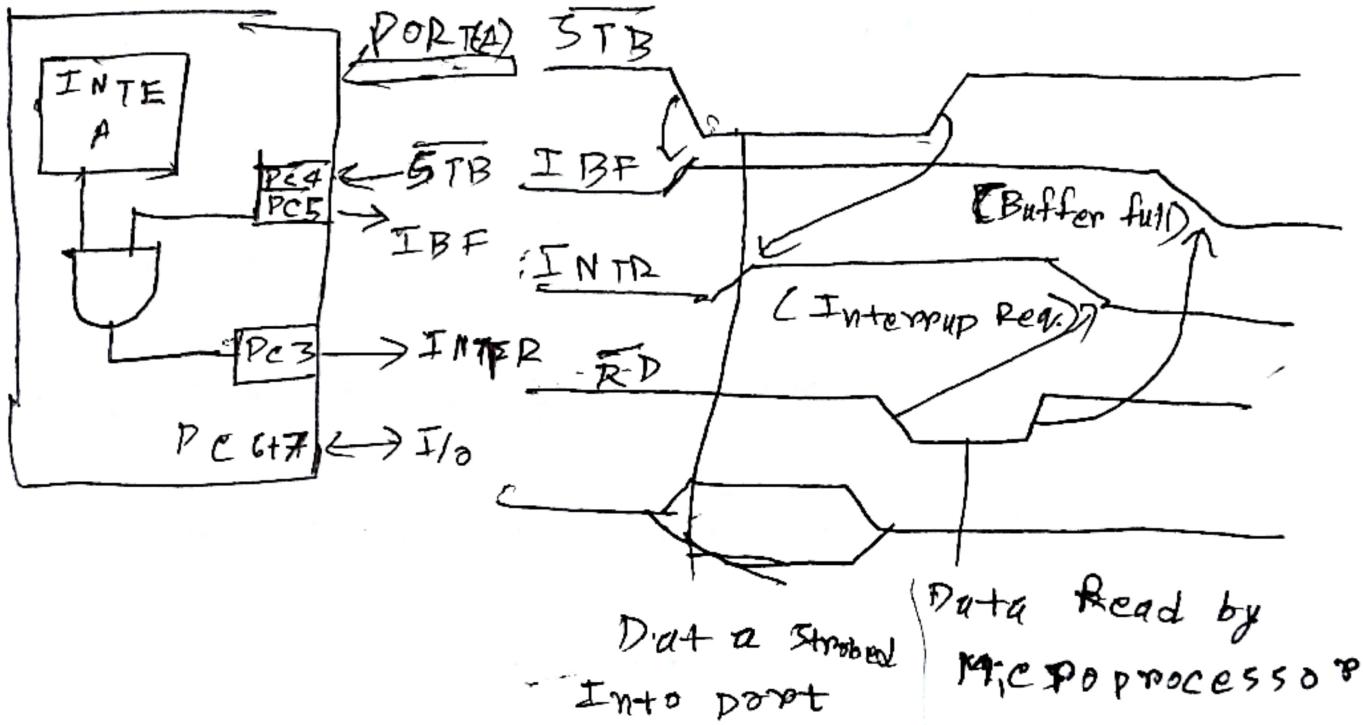
Step-4: After receving INTR = 1 the MPU will send $\overline{RD} = 0$ signal to 8255 IC to send input from MPU.

Step-5: Then $\overline{PD} = 0$ signal the IC to send all date to MPU. After receiving data 8255 will ~~again~~ sew INTR = 0 to end data transfer.

Step-6: MPU will send $\overline{RD} = 1$ to 8255 to conferm data transfer.

Step-7: 8255 send IBF = 0 to stop taking data from the input device.

Mode - 1 Port-A: (Timing Diagram)



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d) The IC-8255 will give output for us to see the 'B' in the monitor.

Step-1: 1st the ACK signal will be sent signal to IC 8255

Step-2: OBF = 0 to give data output through port-B. It will happend when the ACK = 1

Step-3: INTR will interrupt the processor so the external device will receives the data by ACK signal.

Mode -1 Port B: (Timing diagram)